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OBSERVANCE OF THE SESQUICENTENNIAL OF THE HARVARD MEDICAL SCHOOL

THE one-hundred-and-fiftieth anniversary of the founding of the Harvard Medical School was duly celebrated,—Ea Qua Par Est Observantia, to borrow the familiar phrase of the Commencement program,—on Friday and Saturday, October 6 and 7, 1933. The observance on Friday consisted first of a series of morning clinics at the three major hospitals affiliated with the Harvard Medical School; secondly, of a series of clinical and laboratory papers presented during the afternoon at the School by members of the Faculty; thirdly, of an anniversary dinner of the Harvard Medical Alumni Association in the evening at the Gymnasium of the Vanderbilt. This dinner was largely attended by graduates of the School, to the number of nearly three hundred. At the High Table were seated Dr. William C. Quinby, President of the Alumni Association, President Lowell, Dean Edsall, Dr. Edmund H. Stevens, the oldest living graduate of the Medical School, still active in practice, and other guests of distinction. It had been hoped that President Conant would on this occasion make his first public appearance before the Medical Alumni of the University; but in his unavoidable absence, President Lowell spoke with his wonted felicity, acting, as he said, "as an understudy for his successor".

The principal speaker was Dr. John R. Oliver. Other addresses of the evening were of an informal or intimate character and the occasion, adjourned at an early hour, was to be regarded chiefly as an unofficial family gathering preliminary to the official observance of the following day.

FACTS AND INFERENCES RELATIVE TO THE FOUNDING OF THE HARVARD MEDICAL SCHOOL*

JOHN R. OLIVER†:

Mr. President, Mr. Lowell, Gentlemen of the Alumni Association of the Harvard Medical School:

Mark Twain tells a story of a little Massachusetts skipper who ran a tiny schooner outside of Boston up along the coast, peddling dried apples and kitchen hardware in the small towns. In his own eyes he was a very important man and observed meticulously all the customs of the sea. One day as he was sailing along, a huge East Indian clipper ship hove in sight. As soon as it came within hailing distance the little skipper climbed up into the rigging of his boat and hailed the vessel, "Ship ahoy! What ship is that?" Back came the response in the big deep bass voice of the ship's captain, "This is the Begum, 180 days out from Bombay and homeward bound. What ship is that?" The little skipper was overawed by the huge craft that was loaded to the Plimsoll line with all the spices, silks and tea from the Orient. Nevertheless, he replied in a shrill treble, "This is only the Mary Ann, 14 hours out of Boston and bound for Kittery Point."

Sometimes I may seem to be all that your President has said in introducing me. I may seem like the Begum, loaded with all sorts of titles, degrees and attributes that I do not really deserve. But tonight, among you here, I am like the skipper of the Mary Ann. I am only Jack Oliver, of the class of '94, bound, thank God, for Boston Harbor.

Boston—Harvard—both places to which one "comes back"—comes back gladly, gratefully, humbly. Doubtless the same is true of other cities and of other institutions, but not to those of us who like Ulysses have once sojourned in this pleasant land of yours, have once tasted of the lotus that grows there and who even after many years, turn back to something that they have found nowhere else in the world.

Perhaps I was sensitized to this mental attitude at rather an early age. In the city in which I was brought up, my family and the family of my uncle lived in two houses that communicated with each other, so that we formed only a single family. There was the Oliver side of the communicating door and the Bowditch side. Bowditch and Oliver are two names that suggest Massachusetts,—Boston,—Harvard. And we children thought of Boston and of Harvard as mysterious distant lands to which father or uncle would occasionally journey. Now and then my father or my uncle would disappear for a week. When they returned, we children would be curious. Our mothers, with a slight disdainful wrinkling of their noses and yet with a sense of mysterious appreciation would answer: "They have been in—Boston—they have been home." Occasionally I would ask my father on his return what

*An address given at the 150th Anniversary Dinner of the Harvard Alumni Association, Boston, October 6, 1933.

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he had *done* in Boston. His answer was almost always the same. "I saw your people. I went to the Somerset Club." "Were the people at the Club glad to see you, father?" I would ask. "Well, not glad. In the Club they would turn their heads for a moment and say 'Hello, Bob' as if they had seen me only yesterday. They acted as if I had never been away from Boston at all." Then I would say: "But why?" Father would answer: "Because no Bostonian, no Harvard man ever admits, even to himself, that any other Bostonian or any other Harvard man could ever possibly leave Boston or Cambridge for more than a few days. You see, if you *have* been away, this is your misfortune. It is something to be politely ignored, because you could not possibly have wanted to be away."

Hence, no matter how long we have "been away" from this part of the world, we always take it for granted that we have never wanted to go and that theoretically we have been always here. Therefore, we return without any sense of a long absence, but with a feeling that our places here among you are always waiting for us because here is where we belong.

I bring you greetings on this One Hundred and Fiftieth Anniversary of the Founding of your great Medical School; I bring you greetings from two other great schools, the Medical School of the Johns Hopkins University and the Medical School of the University of Maryland.

To a medical historian who is also interested in psychology, every medical school has an atmosphere of its own; and now that prohibition seems nearly over with, now that one may speak more or less openly of alcoholic fermentation and its results, perhaps I may be allowed to compare medical schools on an alcoholic basis, on a basis somewhat stronger than 3.2 per cent.

You may have heard of the French School of Symbolists that flourished toward the end of the last century. They believe that in literature, in the drama, in painting and in music all the senses could be appealed to at once. In verse, for instance, certain vowels were red while others were blue or green; in music the sounds of certain instruments had definite colors. The dramatic productions in Paris at the Théatre Lîbre combined and appealed to all the senses. When the heroine came on the stage, you not only heard a certain musical theme, you smelled also a certain odor that was wafted into the auditorium from great atomizers from behind the scenes. Scriabine, the great Russian composer believed that in his symphonies he could produce in his hearers not only sensations of hearing, but sensations of smell, of taste and of touch. In Huysmans' famous book, "A Rebours," the hero of the story has a peculiar type of musical enjoyment. He has constructed an organ with a great number of stops. Each stop represents not a series of metal pipe reeds, but some kind of a liqueur, spirit or wine. When you pull the stop on which is written Cognac, a few drops of Old Cognac fall into a glass placed beneath the organ. Now the taste of Old Cognac represents the sound of the cello. In the same way, Scotch whiskey tastes like the sound of a trumpet. The taste of Benedictine is equivalent to the tones of a viola. Thus each type of liqueur or spirits represents a definite instrument in an orchestra. On such an organ you can compose a sonata or even a symphony. You pull out the definite stops to represent the different taste-instruments that you need and then drink the mixture. I do not imagine that Huysmans' hero was able to stand more than one symphony a day at the most.

It is along these alcoholic lines that I am daring to compare the atmosphere of various medical schools, along the taste, touch, auditory and visual reactions of Huysmans' peculiar musical instrument.

There is the bubbling effervescing champagne of Yale. There is the claret of the younger schools like Duke. There is the sound Scotch of the great schools in New York that is, however, somewhat flavored with the ceremonial wine of the Old Testament. Then there is the matured sound Brown Sherry of Johns Hopkins. But for Harvard what wine is to be compared with its atmosphere?

Last summer I had dined at High Table in King's College, Cambridge. We had adjourned to the Common Room with its long bare table at the head of which sat the Vice Provost of the College with three decanters of port in front of him. The decanters began to circulate, always from the left to the right. Smoking, of course, was impossible. No gentleman profanes the taste of a glass of port by the nicotine of a cigarette. As I raised my first glass of port to my lips, I knew that here in Cambridge, here at John Harvard's own University I had found the thing that seemed to me to represent most clearly the spirit of the Harvard Medical School.

The port of Harvard, an ancient vintage, 150 years old, laid down long ago, kept from the dangers of corkage, rebottled, strained occasionally and growing sounder, better with every passing year! A fine wine, gentlemen, a wine that has both body and bouquet.

Let me try to illustrate these two qualities of the spirit of your great school. For the atmosphere of your school has its body, that gives it its solidity; and it has its bouquet that gives it its friendliness and its attraction.

As a boy I took a great secret interest in the one murder that adorned the history of my family: the murder of Dr. George Parkman,

one of the great benefactors of your Medical School, by Dr. Webster, a professor at that same school. Dr. Parkman at the time of Dr. Webster's trial and afterwards was unfairly caricatured because he happened to have been murdered by a chemist. There were not so many chemists in those days and a murder by a chemist was unusual. Today there are so many chemists that a murdering or even a murdered chemist or two would not create much interest. However, Dr. Parkman gave to your Medical School the land on which the first important building was raised in Boston and he founded the chair of Anatomy that was held for so many years by Dr. Oliver Wendell Holmes. You may remember that what finally hung Dr. Webster was the discovery in the furnace of his laboratory of Dr. Parkman's famous set of false teeth. These teeth had been made especially for him by Dr. Keep of Boston, made to be used at a public meeting of Harvard officials at which the President of Harvard University accepted Dr. Parkman's gift of the ground for the new school, and at which Dr. Parkman himself delivered an oration that was slightly marred by the clattering of his newly made teeth. But Dr. Parkman was not only a great benefactor of your Medical School. He was also a physician and an unusually well-educated man. He had studied abroad, in France, and had made many friends there. I have in my possession a letter of his charmingly written in French and addressed to one of his French colleagues. He married the sister of Robert Gould Shaw of Boston.

People made fun of Dr. Parkman because of his peculiar chin. They did not love him because he was very self-restrained and not easily approachable. At Dr. Webster's trial, Robert Gould Shaw, the brother-in-law of Dr. Parkman, testified to three facts, first to Dr. Parkman's absolute integrity, an integrity that did not brook dishonesty, an integrity that was impatient of all shams and of all evasions. Secondly he testified to Dr. Parkman's meticulous punctuality, to the orderliness of his life and to his absolute dependability. Thirdly he testified to two somewhat unpleasant objective facts that had to be faced, simply and sanely. He testified to the fact that Dr. Parkman wore no underclothes and had red hair on his legs.

These three characteristics go to make up that attribute which the Romans called "austeritas". Men of this calibre are hard, perhaps, but they may be depended on absolutely and their very hardness gives them permanence and solidity. It is this "austeritas" that gives to your Harvard port its "body". Like Dr. Parkman, your school has never tolerated scientific charlatanism. You, like him, have always been impatient of shams and of medical evasions. Secondly, you have maintained his ideal of orderliness, of discipline and of rule, that detests slipshod methods, that sets high standards and makes no exceptions. Thirdly, like Mr. Shaw, in his testimony about his brother-in-law, you have faced objectively the fundamental facts of human life just as Mr. Shaw faced the facts that Dr. Parkman had red hair on his legs and wore no underclothes. You have faced such facts without prudery, without evasion; you have been content to call spades, spades, to call legs, legs and not limbs, and to call hair, hair instead of "the filamentous structures that grow from the outer covering of a mammal". You have learned to be objectively scientific, to hate sentimental blitherings and to walk in this material world with both feet on the ground.

"Austeritas" Austerity! This builds a sound foundation. This gives your Harvard port its body.

But a port that has only body is certainly not drinkable. It needs its own special bouquet. It needs sweetness. What the Romans called "suavitas". Without suavitas, your austerity will become too hard. Without the austeritas your suavitas becomes too sweet, too sticky and sentimental. Allow me to illustrate what I mean by this "suavitas", this bouquet of your Harvard vintage by a recollection from my own Harvard undergraduate life.

The name of Bowditch is intimately connected with your school. It was prominent in your department of physiology in the school itself, and it has been prominent in medical practice in Boston. No one who once knew old Dr. Henry Ingersoll Bowditch will ever forget him*. Nor will those of a younger generation forget his son, Dr. Vincent Yardley Bowditch, who did so much for the study of tuberculosis in your state. Last of all, there was the grandson, Henry Ingersoll Bowditch, Jr., whose untimely death a few years ago robbed you of one of the kindliest and sweetest personalities that I have ever known. If the Parkmans represent the "austeritas" of your medical atmosphere, the Bowditches represent its "suavitas", its friendliness, its kindliness, its loyalty.

Old Dr. Bowditch died in 1892. During the preceding few years he had been growing weaker and weaker and seemed never to have recovered from the loss of his wife who died in December, 1890. He was one of the most beautiful, most impressive old men that I have ever seen. No one who knew him in those last years would ever forget that clean-cut kindly old face with its surrounding halo of soft white hair and beard. There was a benignity about him that passes description. Of an afternoon, he

*See an interesting article on Dr. Bowditch by Dr. Adolph Walkling, published in the *Annals of Medical History* of September, 1933.

used to sit near the window of his library. Close to him stood a glass case that contained the uniform of his son Nathaniel, who fell in the Civil War. On one side was this peaceful old figure, while on the other were the relics of war: of a war that he had felt to be a righteous war and to the righteous cause of which he had sacrificed the life of his son. At that time I was a thoughtless, self-centered, self-opinionated undergraduate, untrained, utterly unstable and probably intensely annoying to my elders and betters. One Sunday afternoon, about a month before Dr. Bowditch died, I came into the old house on Boylston Street to see him. He was too weak to talk very much and as I sat down beside him in silence, he suddenly took my hand and kissed it. It seemed to me a sentimental action. I was conscious of a sudden feeling of shame. But then the old doctor lifted his own hand. He pointed to the case of stained uniforms on his left and then to the portraits that hung on the walls of his room. Portraits of Emerson, of Parkman, of Bowditch the Navigator and of others. Finally, lifting my hand once more to his lips, he said, "I am only handing on the torch, dear boy, only handing on the torch."

This element of "suavitas" is not sentimentality. It is something much finer, much more noble. It is often concealed beneath our New England austerity, but it has always been an element in the atmosphere of your medical school. For yours has been a school of great friendships, of unselfish devotions, of deep emotional experiences.

And so your "austeritas" is your intellectual element. Your "suavitas" forms that emotional content which balances and glorifies the other. Of these two traits is your Harvard tradition made and so Harvard port is what it is because of its body and because of its bouquet. Other wines have not lain so long in the wood. The vintages of other medical schools may be more fiery. People may feel that they get more "kick" out of them and perhaps it is, unfortunately, true that our younger generation in its pursuit of academic bootlegger gin has lost its taste for the finer and the sounder wines. But they will not lose it for long. As the New Testament says "The old is better." And no matter what may be the temporary tastes of our very young people today, we, of an older generation, appreciate more and more the seasoned things of life.

Your Harvard Medical port was laid down 150 years ago and it still holds its old body, its old bouquet. This inimitable blending of "austeritas" and of "suavitas", of hardness and of sweetness—this makes a sound wine, gentlemen. We who must drink of younger vintages salute it and you. I only hope that you have enough of it in your cellar to last another 150 years. Do not dilute it, do not let it grow corked or sour. Cherish it, and drink it. Tonight I drink to you in it, with the old toast of Joseph Jefferson's Rip van Winkle on my lips "Here's your health and your family's, and may you all live long and prosper."

On Saturday morning, October 7, fortunately auspicious in temperature and weather, a large group of Harvard Alumni to the number of nearly five hundred assembled in the College yard and formed a procession equaling, if not exceeding, in length that of Commencement Day. At the same time the gentlemen of the Corporation, the Board of Overseers, and the Medical Faculty assembled in front of Harvard Hall. At half past ten o'clock, "upon the tolling of the bell", and to the colonial music of drum and fife, the procession, formed in the usual academic manner, marched around the old yard, thence through Sever Quadrangle, past the new Memorial Church to Sanders Theatre, its path being lined for a considerable distance by medical undergraduates. The second balcony of the Theatre was almost completely filled with members of the families of the Faculty. A few representative members of the Faculty of Arts and Sciences were present and sat with the Medical Faculty, Overseers, and Corporation on the platform. When the audience was duly seated, Dean Sperry, as Chairman of the Board of College Preachers, opened the Solemnity with prayer. President Conant then delivered, as follows, a short introductory oration, his first public utterance before an audience representative of the Harvard Medical School.

Address by James Bryant Conant at the One Hundred and Fiftieth Anniversary Exercises of the Harvard Medical School

Exactly one hundred and fifty years ago the Governing Boards met near this spot to induct into office the first professor of Anatomy and the first professor of the Theory and Practice of Physic. We are gathered together this morning to commemorate that event.

By this commemoration we celebrate the one hundred and fiftieth anniversary of the founding of the Harvard Medical School. During the last century and a half Harvard men have made notable contributions to the theory and practice of medicine. Today the School is one of the great centers of medical research and education. Harvard congratulates itself on these triumphs, and looks with confidence to a still more brilliant future.

Now there are some interesting considerations in connection with the timing of this celebration which has been arranged for eleven o'clock instead of twelve o'clock as in 1783. In spite of this discrepancy of one hour, my statement that it was exactly one hundred and fifty years

ago that the induction took place is accurate to within one ten-thousandth of one per cent. Such precision is fantastic! Indeed, I have never been able to see why historians were so meticulous about dates, since history is admittedly not an exact science.

Especially when one considers the date of the founding of the Medical School, certain difficulties immediately become apparent. On September 19, 1782, the Corporation adopted a report embodying a plan for the formation of the School. On November 22nd they voted to elect one professor, John Warren; and on December 24th they elected another professor, Benjamin Waterhouse; and on May 22, 1783, Aaron Dexter. Then in the following October, two of the professors were installed. It seems clear that the exact birth of the Medical School cannot be given with an accuracy of more than one year in one hundred and fifty. If you will admit a similar percentage of error in another case, I may also state that Harvard College was founded three hundred years ago today. And this rational treatment of chronology enables us to feel that this occasion has a historical symmetry which would otherwise be lacking.

Although Harvard College is twice as old as the Harvard Medical School, the most significant part of its history coincides very closely with the development of the faculty of medicine. Since you are allowing me to celebrate this morning not only the founding of the Medical School but also the three hundredth birthday of Harvard College, I should like to dwell on the significance of the Medical School to the University.

The development of the medical faculty was the first step in changing Harvard College into the famous University which it has now become. Until 1810 the instruction in Medicine continued in Cambridge. At great personal sacrifice the Boston doctors who had been elected professors came here to give their lectures. At the time of their election, there were only three other professors in the College; these were the professors of Divinity, Mathematics, and Oriental Languages. The faculty was heavily weighted on the side of Medicine, and the influence of the new members on the intellectual life of the College must have been of the greatest significance. How much this was appreciated by the whole student body may be judged from the fact that the undergraduates protested vehemently when the medical faculty left Cambridge.

The lack of clinical facilities was a handicap to the development of the School, and so after twenty-seven years of Cambridge sojourn, the Medical School moved to Boston. The transfer was undoubtedly necessary for the proper development of the School, but it must always be regretted by the University at large. A stimulating and important influence was withdrawn from the College.

During the period that followed the migration to Boston, the connecting thread between the medical faculty and Harvard College grew more and more tenuous. Indeed, the Medical School was essentially a separate institution for many years until Harvard University came to life as a real living entity under the guidance of President Eliot. Since that time, although the instruction in Medicine continued in Boston, the connection between the Harvard community in Cambridge and the medical faculty has become increasingly close. It seems to me a particularly good omen that this celebration of the founding of the Medical School is held here in Cambridge, and I hope it may foreshadow a still closer drawing together of the scientific activities on both sides of the Charles.

In a university it is essential that those who are devoting their lives to one specialty may have the privilege of being associated with the leaders in entirely different fields. The catalytic value of such associations is incalculable both from the point of view of the faculty and of the students. This has always been the case and will always continue to be so. Today more than ever, the relation of Medicine to the sciences of Biology, Chemistry, and Physics is very intimate. The scientific departments of the University need the Medical School, and the Medical School needs them. Many of the problems which are engrossing the attention of the medical profession, both clinically and in the laboratory, are of the greatest importance to general science. I need name only one example: the filtrable viruses, now recognized as the cause of a number of the most baffling human diseases. These mysterious substances appear to be on the border line between living material and the non-living. They seem to be either very complex protein molecules or very primitive living organisms. Obviously their study is a biological problem of major significance as well as of importance in connection with the treatment of many diseases. They may be studied not only with animals but also with plants, since a number of plant diseases are also caused by a filtrable virus. Here we have an example of the way in which the modern study of certain practical problems has revealed to the scientist questions of the most fundamental significance.

The scientific departments of a great university are tremendously handicapped if the university has no medical school or if it is at such a distance that there cannot be close coöperation on such problems as these. Fortunately Cambridge is much nearer Boston than it was formerly. It is no longer necessary to spend several hours in the journey or to cross by an uncertain ferry, as in the days of Dr. Warren. Today the laboratories in Boston and Cambridge are essentially part of one group. We may be certain that this will be of great advantage in the years to come.

A study of the history of the Harvard Med-

ical School shows certain significant changes, all of which point in the same direction. The School was founded by a group of Harvard men whose medical education had been by the way of an apprenticeship; they were in a sense almost amateurs. They were able to devote a large part of their energies to subjects other than their profession and often played an important part in their community as statesmen and soldiers. They had served in the Revolutionary army and had been faced with many surgical and medical problems. From these experiences grew their determination to found a medical faculty. However, for these men medicine was largely an art passed on from man to man.

Fifty years ago when the one hundredth anniversary was being celebrated, the then recent triumphs of medicine had many of them been perfections in the art, made possible by the great skill and patient study of remarkable practitioners. The laboratory medical sciences were just beginning. A virgin field lay before the medical scientist of that day. One man might then make a revolutionary discovery almost unaided. With rare exceptions this is no longer true today. The great advances which are being made can only be described as a mass attack, and in the future even more research will probably be carried on in this way. It is less interesting, less exciting, and a much less romantic method of scientific progress, but it is certainly not less effective. The fortresses now being stormed could never have been won in single-handed combat.

An excellent example of the modern trend of medical research is afforded by the recent work on vitamins. On an average, almost four papers a day appear on this subject, and investigations are in progress in many hundred laboratories. Within the year the essential chemical nature of vitamin C (the antiscorbutic vitamin) has been established except for certain details. The credit for this advance must be distributed among at least four laboratories and perhaps a dozen workers. A few years ago a team of six English scientists attacked the problem of the isolation of the antirachitic vitamin (vitamin D). They were finally successful, and at almost the same moment a group of workers in a German laboratory arrived at the same goal by another route.

It seems to me perfectly clear that the future advances in all science, including medical science, will be made very largely by coöperative efforts; these must necessarily be informal, and may indeed involve people in different laboratories, even in different countries. Probably no one advocates a blueprint plan of coöperative research, but coöperation of some sort seems essential. If effective investigations are to be carried on in a modern university, there must be present a group of brilliant men with different skills at their command and with a willingness to aid each other whenever possible. In addition there should be the possibility of frequent informal meetings to discuss mutual problems. If these conditions are fulfilled, significant research is sure to develop.

We have every reason for confidence at Harvard today. A great medical school is an integral part of a university whose departments have proved their ability to labor together harmoniously and effectively. In teaching and in research the medical faculty have written a record of which all Harvard is proud. We salute the distinguished past and turn hopefully to the future.

Following President Conant's address, the University choir sang four verses of the CXXXIX Psalm according to Tate's and Brady's version, the same which were sung at the original inauguration exercises on October 7, 1783.

President Conant then called for the inaugural oration of Professor Warren, which was delivered from the desk in the English language for Dr. Warren by Dr. J. Louis Bremer, Herseian Professor of Anatomy in the Harvard Medical School.

Inaugural Oration

John Warren

Most Honored Gentlemen:

When I consider that my appearance in this noble building and before this distinguished assembly has been made possible through your indulgence, I cannot doubt that generosity of spirit that has always been so characteristic of you on this extraordinary occasion, to which I am little accustomed.

Everyone who has a real love for the Liberal Arts must also take the keenest interest in the study of Physics, or the Natural Sciences, and rejoice in the advances made in these subjects in our present times. Every part of Europe is full of activity in the field of Experimental Chemistry, so that scarcely a wind blows from that quarter that does not carry with it tidings of new discoveries. In no lesser degree the Science of Botany lays claim to renown for new advances, especially for the most excellently arranged nomenclature of Linnaeus. The Science of Natural History also is on the verge of great developments, as evidenced both by the great collections of books on the subject and by the investigations concerning the structure of animals diligently pursued by the French philosophers; from whose industrious labors has been born a new classification, and a division of species according to structure, highly perfected, into orders and suborders. And now the Science of Comparative Anatomy, first fostered by the Greek philosophers, Plato and Aristotle, before they ventured to explore the human fabric, has become rejuvenated through the accomplishments of such renowned scholars as Hume in England, Cuvier and Dumeril in France, Blu-

menbach and Camper in Germany, so that it has been built anew from its very foundations.

Here in America, our native land, the outlook for the future of the Natural Sciences is not discouraging. Everywhere burns the desire for the promotion of learning through Academies and libraries; and if we may not as yet gaze upon the sacred groves of learning as actual Academies and Lyceums, yet we may see that learning in the form of books from the older Academies and learned societies, which will afford manifold opportunities for examining and pondering the new opinions and discoveries of Europe. This is no small advantage; for in this country of ours, all too limited as yet in cultural attainments, it is not the part of wisdom for our students to dissipate their energies in the search for new facts, but rather to reflect deeply on the fruits that have been cultivated by other hands. In this Republic, and in our own University of Harvard, the Natural Sciences already flourish most particularly. The Botanical Garden, blooming in the gayest hues, revels in innumerable plants, indigenous and European, and rejoices in the splendor of both the Indies.

A new College of Medicine, upraised on no high pinnacle, but with a broad foundation under the ample wings of the University, is now made ready for the useful art of healing. A magnificent collection of instruments of Natural Philosophy, removed from the obscurity which they have formerly endured, now shines resplendent in the ample hall. In addition, many faithful reproductions of the human body are to be seen, which only lack a theater adequate for their proper display. If with all this we might increase her renown for a learning already great, no Academy should be more worthy of praise than ours. Oh! light of our Fatherland! Oh! glory of our Alma Mater! Thrice fortunate, yea more, are they who by thy light shall gather the flowers of learning and science, if they realize their opportunities.

That my good fortune and your favoring opinion, most worthy Gentlemen, should have cast an unmerited lot for me at this propitious season, fills me with great joy; but greater is my pleasure that I take my place among colleagues whom I recognize as highly learned and most sympathetic. My greatest delight is that this office is received from your hands, most reverend Master, at once our patron and our pride.

It is not in my heart to waste meaningless words; but since I have had long experience of your kindness, of your vigilance, of your patience in giving ear to and practical knowledge in administering the whole field of Sciences, I cannot forbear to render you our praise and thanks. May the rewards of your services, the teeming fruits of your labours, the veneration of all, and our highest devotion be heaped upon you in abundant measure.

Following Dr. Warren's inaugural oration President Conant called for the inaugural oration of Professor Waterhouse, which was likewise delivered from the desk in the English language for Dr. Waterhouse by Dr. Henry A. Christian, Herseian Professor of the Theory and Practice of Physic in the Harvard Medical School.

Inaugural Oration

Benjamin Waterhouse

Inasmuch as I have lately received the dignity of being called to give public instruction in the New Harvard School of Medicine and now, in company with my colleagues of Surgery and Anatomy have been solemnly inducted as a Medical Professor, it is incumbent upon me, before entering on my duties, to pronounce the customary greetings and to pay the thanks that I owe.

Worthy Gentlemen of the Corporation and of the Board of Overseers, I first compliment you. Often in times past, you have proved yourselves munificent patrons of the College of Cambridge. On this occasion I have every reason to declare my deepest admiration for you, since by your authority you have seen fit to direct the reputation of the College to increase by the addition of a Medical Institution. On this accomplishment I congratulate you, too, Sir, our President, most charming, most learned of men, distinguished both by the gravity of your office and the splendor of your erudition, a light of the College that shall ever be venerated.

I bring my greetings to you, worthy professors and my amiable colleagues, and to you, also elect circle of studious youth, the hope of our Country, the source of our anxiety and of our love. And finally, kindly auditors, I pray for you that everything be auspicious and well.

To a certain extent, it is possible to perceive righteousness in Warfare if one considers the matters to which a people driven into combat may devote their attention immediately after the struggle is ended. When the citizens of the Dutch Republic, one of the most prudent States of our age, after exercising great valor and enduring the severest exertions, had finally secured possession of their own government, they straightway took care to establish Medical Schools in their Universities. This step led their people to give attention to literature and to endeavors that Thought and Virtue should flourish throughout the land. Hope of these attainments had been the object of their battles and had supported the citizens of this Republic during their period of strife.

If these accomplishments are reasons for praising the Dutch, it follows that we as citizens of America deserve a greater praise. When we were oppressed by War and by its accompani-

ments, Poverty and Death, when the enemy was without and the traitor was within our walls, when our bonds of union were lax and almost dissolved, when Hope only was left, the fact that in the midst of such threatening evils we took occasion to cultivate the Liberal Arts is surely more than could have been expected and easily surpasses every example. And yet during a period of great confusion and during a time when all tranquility and leisure were absent, Colleges and various learned Societies were founded in our midst. Among dire calamities there always shone somewhere in this country the hope of re-establishing the Arts; and now under Harvard's auspices, a School of Medicine has put forth its head. There can be no doubt that our deeds in this age will be remembered for a long time. Authors in future will not fail to admire the men of America who, unmoved by the swords or insults of their enemies, devoted their energies to the restoration of Letters as well as to the establishment of an independent Republic.

Now that the storm is over and we have acquired leisure and liberty, let us remember that a Medical School is the strongest defence against Illness that common ravager of all nations—For it is the function of the Medical Profession to preserve those who are in health, to strengthen those who are weak, and to restore if possible or at least prolong the lives of the dying.

The adequate teaching of Medicine, which is the topic of my address, embraces the subjects of anatomy, chemistry, the science of herbs, and the knowledge to be gained from the whole of Nature. Since the practice of Medicine is so important and inclusive a profession, I entreat you in your amiability to listen attentively to my brief remarks on this Art.

Both reason and history indicate that in ancient Times our knowledge of Medicine was founded on experience. The theoretical side of treatment was developed later and was discussed in debates or colloquys. Experience or the so-called empirical part of Medicine appeared to yield less uncertain knowledge, for when the conditions of disease are the same the results of disease are the same. On this account it is very probable that the writings of Hippocrates, the books of Galen, of Celsus and of the other ancient physicians have been preserved to posterity. Such writings relate largely to the practice of Medicine and describe clearly the lessons to be learned from clinical observation.

The industry of modern days has discovered many new facts about the composition of the body. Much still is hidden and will probably remain long hidden. None the less who ever wishes to compare the ancient physician with the modern must admit the superiority of the modern, taking into consideration our present-day knowledge of anatomy, chemistry, surgery, botany and physics, remembering the new remedies that have been devised and the old ones discarded because of their unpleasantness or the discomfort involved in their application. Nothing is more useful or essential to a doctor than a knowledge of anatomy in order that he may obtain a lucid conception of the functions of the human body whether it be healthy or diseased. Anatomy explores diseases, it reveals their hidden retreats and often brings to light their causes. Who, kindly auditors, could have known anything about rupture of the heart unless this disorder had been discovered by anatomical investigation? Who could have discovered the lacteal vessels, the irritability of the heart and other muscles, the peristaltic motion of the intestines if there had been no anatomical studies? Anatomy, always, must remain the primary foundation of Medicine.

Botany, little known to the ancients, has been so cultivated at this time that there is not a plant which cannot be easily recognized from definite marks affixed to it by the Creator. Nor has chemistry been less useful to Medicine. By the aid of chemistry the latent curative powers of substances hitherto unknown have been made manifest. Quinine, for example, a most effective remedy unfamiliar to the ancients, has submitted to the service of mankind. Thus our knowledge of Pharmaceutics has been signally advanced through chemistry. No doctor can disregard the usefulness of chemistry if he wishes to avoid great errors in the administration of his remedies. And how difficult it is to avoid errors when the chance for making them is so great! How frequent are the fallacies encountered!

Nor can the motions of living beings, surely, be explained without an accurate knowledge of Physics. Who can explain the nature of respiration if he does not understand the nature of air? Who can explain the operation of sight when he is ignorant of the nature of light and is unacquainted with the laws of its radiation? Who can deal with the subject of hearing, without having studied Pneumatics? Bodies of animals are not unlike those machines which are described as hydraulics, in which diverse humours come and go as in a circle, with great speed, perpetual motion, and in incredible volume. Thus whatever pertains to mechanics or hydrostatics combines in some fashion with Medical education.

Where can the precepts of all these sciences be taught with greater profit than in Harvard College? I should like to pursue this topic further, but time forbids. On another occasion and in our broad and beloved Yard, I shall gladly expatiate upon it.

"Men", says Cicero, the parent of Roman eloquence, "approach God most closely when they serve other men." What is more human, more worthy of man and Christianity than to help the weak, the diseased and the suffering? It is to be lamented that the field of Medicine

which treats of mental illness and of cures for the mentally diseased is still so uncultivated and so deserted that it is almost non-existent. The dignity of the argument commands, the progress of Medicine persuades and the love of the Human Race should compel Harvard University to commence the investigation of means to combat such illness.

Sagacious and learned President, generous members of the Corporation and Board of Overseers: I trust that nothing will be nearer to your hearts and dearer to your honor than Harvard College. From its founding, in every wise man's judgment, Harvard has been of extreme usefulness, glory and help to the whole American Republic. May the College, day by day and forever, make signal progress. To you gentlemen, fathers of our Country, my friends and benefactors, has been given the privilege of advancing the Medical Sciences. You deserve great praise for having established a Medical Institution here.

College of Cambridge, permit me an adopted son to address you as mother. May you ever proceed on your way serenely and like the rising sun diffuse your light even to the extreme recesses of the Republic.

President Conant then begged Mr. A. Lawrence Lowell, President Emeritus of Harvard University, to address the meeting, introducing him as follows:

"The past twenty-five years have been the most brilliant in the History of the Harvard Medical School. This has been due, in no small measure, to the guiding hand of the President of the University during that period. We all delight to honor one who has done so much for Harvard University and the Medical School. We rejoice at the opportunity of hearing him again this morning."

As President Lowell, august and benignant, rose, the entire audience rose to greet him with prolonged applause, following which he addressed the meeting as follows:

Address by A. Lawrence Lowell, President-Emeritus, at the 150th Anniversary of the Harvard Medical School

To ask anyone who has had no experience whatever with the School of Medicine, and very little as a patient, to address the alumni and teachers of this school, is to give one a task. However, I accept the task.

Even the ignorant may take an interest in the problems of education in the Medical School, a subject of intense interest because it is the most difficult of all the professional schools of the University.

Nature is coy; she yields her secrets only to those who seek them earnestly and assiduously, and she yields them only bit by bit. This is fortunate because if mankind were possessed of all knowledge and there were no more possible to obtain, his intellectual powers would atrophy and the world would become static.

Once in a while indeed it is given to some person peculiarly favored, to get a wider and a deeper view which amplifies some detail. Keppler, for instance, who is responsible for our present theories with respect to the planets; Darwin, who relieved us from the enormous amount of learning as to the classification of animals by explaining that they were all examples of a particular type; the great doctrine of the eighteenth century of the conservation of matter; and that of the nineteenth century, of the conservation of energy, which simplifies things greatly.

Here within a hundred years, what has been learned about electricity, chemistry, bacteriology and many other subjects, has increased enormously the range, and the result has been an accumulation of vast stores of partly assimilated and largely underrated knowledge.

Now this has been particularly true of medicine. As we hear good old Dr. Waterhouse's description of how much a physician had to know, we laugh—no; we don't laugh at the good old man; we smile—because we feel how little he knew about the abundance of information a man must control today. It looks to us like child's play as we hear him.

And, moreover, medicine involves many sciences bearing on the normal and pathological functions of life, which are most diverse. What does the ordinary student in the medical school know about the connection between anatomy, chemistry, bacteriology and so forth? These are difficult subjects, learned to be forgotten, very difficult to retain, because the old matter does not work up into anything that the student can see as a connected system. Indeed the detailed knowledge of the members of the faculty of medicine at the present time is far beyond the capacity of any single one of those gentlemen. Years ago William James remarked, of the faculty of Arts and Sciences, that their aggregate ignorance was encyclopedic.

Now, if this be so that no one of these gentlemen is capable of knowing all that they ought to know in the aggregate, the question is natural, "How can knowledge be taught that is too extensive to be known by anyone?"

That is one of the problems of medicine at the present date and it is one of the problems of all education. In the medical school it cannot be solved as it is very frequently solved in general education, by saying "Let one man study history if he likes it and another literature, and the third biology." We cannot say then to one practitioner, "Know only anatomy," to another "Know only protozoa" and to a third, "Know only pharmacology." It would be like the undergraduate who was asked to write on Chinese philosophy and who read the encyclopedia article on China and the article on philosophy and combined the information. In

the case of medicine who is to combine the information? The patient?

Physicians do indeed specialize. Of course they do. But they must all have a thorough medical education. And amid the mass of knowledge we must make a selection of the amount to be taught in each of the many indispensable subjects.

Now, let us take a view backward. Perhaps there is a revulsion against the earlier theories and practices in education and the tendency to indulge in fantastic discussions about such things as how many angels could stand on the point of a pin. Partly because of our material advance and the spread of schooling to the whole community the demand is growing for instruction in useful knowledge, and one is often asked what is the use of studying this and that. And that takes the turn of regarding information as the object of education until we think too much of learning facts and too little of using thought.

Facts are essential in many ways. Even facts that will never be remembered have their effect. It used to be said that every English gentleman should have forgotten Greek. There is some sense in that. Nevertheless, many facts must be learned and experiments performed that will never be repeated, for the sake of the power of thought acquired thereby.

After all, the goal of all education is not the amount of isolated facts retained but the capacity to apply principles to conditions as they arise. Therefore, the tendency in medical education is in the direction today of inculcating a firm grasp of principles which are generally applicable, with less stress upon special information. What will be later needed can be gained through other sources.

We have tried in the Medical School to reduce the amount of study of the specialties in favor of the general principles of medicine, and it is the part of wisdom to know the line between the general knowledge of medicine and these special matters which are valuable not so much in themselves but by the light they cast on the whole.

Moreover, the fact that medicine rests upon so many sciences apparently unconnected, makes it especially important to see their relation to each other, so that the student can see them, to make him understand their bearing on the whole, instead of learning and partially forgetting long series of specialized subjects.

With this object we introduced at Harvard many years ago a general examination, not—as it was at first thought by some—in the sense of review but as a standard that would involve a correlation of all that they had learned.

The problems in medical instruction are not all solved by learning how to teach a subject too vast for anyone to know.

Medical knowledge has not only increased enormously within recent times but it will continue to increase and it will increase still more. And it will increase in directions that cannot now be foreseen. If they could be foreseen we would know them now.

And all physicians now trained will be called upon to use knowledge that did not exist when they studied their profession. That has been the experience of everyone who has been out of medical school over ten years. What did the men who graduated in the seventies know about bacteriology? What did they know about insect pollen? What did they know about the million things that have come up since and which they have had to use?

I have asked about teaching a subject about which nobody can know all. Now I want to ask how students can be taught things that their teachers do not and cannot know. That is merely another way of stating one of the problems of all modern higher education.

Oh, we have courses for graduates. They are good so far as they go. But they are availed of by only a small part of the profession in the first place, and, short as they are, they are insufficient unless the men who attend them are prepared by previous education to assimilate their ideas. And that is true not only of the Medical School but of all our professional schools.

In short, the student must be given such a comprehension of the science of medicine that its implications and the application of new developments will be accepted by him as an extension rather than a subversion of what he has learned. He must know how to seize upon them in medical journals and reports so that he can make them his own and use them.

The object of a medical school is not to train practitioners but to train investigators also. And let us observe that the useful assistant is not always the original thinker. They may or may not come together. It sometimes is true that the man destined to make great discoveries is useful to his chief while he is young, but sometimes the man who is useful is not the man with great originality.

To be original requires imagination. Ah, that is the essential, how to stimulate the imagination. Mere erudition will not do it. Benjamin Franklin could not be a really great scientific light.

The art of provoking imagination and the conditions that most foster its growth have as yet been imperfectly studied. Perhaps in its nature imagination is elusive. Yet it is the finest fruit of a university.

Following President Lowell's address the University Choir sang the first four verses of the CIII Psalm according to Tate's and Brady's version and immediately after the singing the company was dismissed. A luncheon, given by the Harvard Medical Alumni Association at the Faculty Club, pleasantly and informally concluded this observance of the Sesquicentennial of the Harvard Medical School.

The Neisserian Medical Society of Massachusetts

SOME PHASES OF THE TREATMENT OF GONORRHEA*

BY EDWARD L. KEYES, M.D.†

DR. Barney maligns me sadly when he says it was with difficulty he induced me to come here. I looked forward to coming here with pleasure and feel myself honored to speak before the only society in the world devoted to a study of gonorrhea. My only regret is not to be able to put before you anything very novel or thrilling. My remarks will be restricted to the diagnosis and treatment of gonorrhea in the adult male. The more important topic of social hygiene shall not concern us tonight.

While listening to the various items of your business meeting one could not help wishing that you had a motto. For our present restricted topic, gonorrhea of the adult male urethra, there is surely no more appropriate motto than the following quatrain, the opening lines of one of the cantos of Butler's Hudibras:

> Ah, me, what perils do environ
> The man that meddles with cold iron;
> What plaguy mischiefs and mishaps
> Do dog him still with after claps.

There is the treatment of gonorrhea in brief.

But let us begin at the beginning. What is gonorrhea? There is an old adage to the effect that a gonorrhea in man is no worse than a cold in the head. Understood in its full philosophical significance I, who am at present suffering from the remains of a cold in the head, will quite agree that that statement is absolutely true because a cold in the head is a systemic disease; quite manifestly it is not merely a superficial catarrh of the mucous membrane for when it gets into my sinuses it intoxicates me. No doubt it is equally true when a man gets a gonorrhea. The evidence is enough to suggest that that is at least frequently the case. Otherwise how explain the fact that a man who gets a gonorrheal metastasis, whether it be in his joints or in his eye, or elsewhere, having been cured of the malady, and having become infected again, will always get a recurrence of the infection and usually in the same joint or in the same eye in which he had it before? That is so nearly universal that in a considerable experience I know of but a single exception to this rule. There is however a variant, a curious one, viz., if a patient has a rheumatism in any of the small joints of his hand or of his foot with his first gonorrhea the same hand or foot, though not necessarily the same joint, is likely to be affected in any subsequent gonorrhea. Further, if a man has a gonorrhea and does not develop joint infection but in a later attack does, with all subsequent gonorrheal infections he will have a joint infection. This suggests that there is an actual bacterial circulation in the blood in a man who has a urethral gonorrhea, or at least in one that is permitted to acquire any intensity, or that is not checked at its onset.

Now some items of importance in prognosis. In the first place it, like most other infectious diseases, attacks the youth most severely. Young men in their teens get much more severe gonorrheas than those who acquire them in their twenties and thirties. In the second place, for anatomical and pathological reasons, the duration of a gonorrhea and the complications that follow upon it are dependent upon the severity of the initial attack. There used to be considerable dispute as to whether stricture of the urethra was due to chronic or to acute gonorrhea. Quite evidently, stricture being a scar resulting from chronic glandular inflammation, there was something to be said on both sides. But as the amount of scar depends upon the intensity of the infection or inflammation, it surely depends upon the severity of the acute attack. It is, therefore, important that we Neisser people make our attack upon the disease at its most acute period in order to keep it as mild as may be.

Let us leave that for a moment and get to the matter which is so difficult a one, the method whereby we know that a gonorrhea diagnosed as infectious, is still infectious. It is most interesting to hear you trying to get a system to permit the intelligent practitioners in Massachusetts to make that diagnosis with considerable accuracy. I used to boast largely that I made no mistakes in this regard. I have talked more diplomatically in my old age since seeing two people whom I had erroneously declared well. The latter occurred within the past year and it may be interesting to you to know precisely what happened in that case. I first saw the patient in the hospital. He was turned over to me because the surgeon in charge had decided that a periurethral abscess due to gonorrhea had better be let grow a little before it was incised. He was more successful in that than anyone I had ever known. By the time I saw it it had grown to such a size that it extended the entire length of the penis subcutaneously from the meatus to the scrotum. There was no hope of doing anything for it except by thorough incision. I did incise it and subsequently as it was healing found in this (and also in another recent case) a point in the

*Extemporaneous remarks at the meeting of the Neisserian Medical Society of Massachusetts at Boston, November 17, 1932.

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pathology of gonorrhea which I had not realized. In each of them the abscess was fed from several glands. Wide skin incision revealed the fact that an abscess communicated with the urethra in one case through three openings and in the other through five. The one in question had dissected the corpus spongiosum from the corpora cavernosa so that for all of an inch one could run a probe between the two. Just to each side of the midline were the openings, one of them large enough to admit a probe, the others only large enough to emit a little sweat of urine when the patient urinated. That was the interesting beginning of this patient's gonorrheal history.

In spite of the protests of his father, no local treatment was given for six months, until the healing was pretty well advanced. The skin which I slit from the scrotum to the end of the penis retracted and healed exposing the naked corpus spongiosum which in the course of 18 months adhered to the corpora cavernosa, became covered with scar and the little fistulae grew so small that, thanks to dilatation of the urethra, the patient no longer noted any urinary leak or urethral discharge. The urine was clear but pus could be got by centrifuge. Meantime innumerable smears were made. Beginning about last March we stopped getting positive smears, the tendency to stricture was controlled, the pus in the prostate was at a minimum, 28 F. sounds and prostatic and vesicular massage did not excite any reaction though the prostatic secretion was still purulent. Treatment was continued all summer without evoking any evidence of gonococci. Permission to marry in October was given. In September he transmitted his infection, showing at the same time a slight recurrence with gonococci in the discharge.

Evidently I am still not infallible. And it is with a knowledge that we may be wrong that we must (if we are ever going to guarantee some patients free from their gonococci) go ahead and take all the precautions we can and realize that if we are wrong it will be with extreme rarity. The difficulties of the gynecologists are far more complex than mine. It is much more difficult to tell if a woman is free from gonococci.

I like to begin with this confession of what was a frightfully upsetting mistake on my part and one in which I happily escaped with my life. But I don't wish to encourage you to think that I treat lightly the transmission of gonorrhea. I know it is a matter of most extraordinary gravity. (I know equally that it is a matter of most extraordinary gravity if I operate on a patient and he dies, that if I had done some other variety of operation or had left him alone the patient might have lived in some degree of comfort longer than he did.) We must recognize that as we treat these cases we cannot always succeed and with that in view the following rules are laid down for determining what constitutes a guarantee of a cure. These do not come up to ideal standards but the two cases I mentioned are the only ones in which I have made a mistake out of cases which must run into the thousands.

In the first place do not respect the smear when it is negative. One might also say up to a certain point do not respect the smear when it is positive because every so often someone dashes into my office bearing a smear in which gonococci have been found, yet the patient has not any evidence of gonorrhea and the few pus cells that are in his urine contain Gram-negative staphylococci that resemble gonococci. Those smears one must disregard on the basis of clinical evidence (which is difficult to interpret to you) and also on the basis of further examination. The first evidence to go upon, as I have said, is the clinical course of the disease.

Because of technical difficulties cultures from certain patients who manifestly still have an infectious gonorrhea will be reported by competent laboratories as showing no evidence of the gonococcus. Perhaps a week later gonococci will be found in plenty. The place to cultivate the gonococci is in their natural habitat, the urethra. The only way of using the natural habitat is by traumatizing the urethra and thus endeavoring to make it a culture tube. This is, of course, dangerous doing. You should never cause the patient to have complications by your experimentation, but somehow you must obtain the requisite lightness of touch to be able to pass instruments into the urethra and to massage the prostate which still contains gonococci with the object of diagnosing as you attempt a cure. The gonococci will disappear within three years, almost always even within one, unless they are kept fermenting by indiscreet treatment.

On this basis one may discharge patients while there is still pus in the urethra or prostate if the patient is watched a sufficient length of time. Of course one does not make one examination and then declare the patient cured unless there is obviously no pus present. One should take somewhere between one and three months to come to a conclusion in a doubtful case.

When I entered the office of my father, Janet had just got under way with his permanganate treatment. How successful it was is evidenced by the fact that no great number of people use the treatment in this country today. One of the difficulties was the trauma it produced at the very time in the disease when one wishes to minimize trauma. If you inject silver salts into the urethra that has been infected only 24 hours, you make one to three or four injections a day. But permanganate treatment involves twenty,

thirty, forty little shocks with each treatment. Owing to this repeated minute trauma a large proportion of cases will become chronic. In other words, it is a suppression of the disease but not cure. The rule in the early cases is never to persist in local treatment if the patient reacts badly even if it is to a single injection. In the last few years I have not been treating so much gonorrhea myself as my associates have, but they both agree with me in liking acriflavine, 1-2000 injected once a day. If you use it too often it will cause a slight sclerosis of the urethra which will lead to a stricture even though it may not cause any pain. If you do any harm with any of the other injections the patient will know it, his discharge will get worse and you will know you are doing him harm. But acriflavine will slowly produce this sclerosis with nothing to warn you. Occasionally patients who are unwilling to come to the office frequently may be treated without local treatment. A very large number of them do surprisingly well simply on the ordinary rules of diet, exercise and particularly of sexual irritation, which is so important. The reason many cases in the Army were so mild was because the patients were not subject to any sexual irritation. They were not going to see disreputable movies and they were not trotting around with disreputable persons of the opposite sex who would give them the type of irritation which causes difficulties and complications in cure.

One of the facts not recognized by a great many physicians is that when one gives drugs and large quantities of water the drug does no good because of the great dilution. If one is giving anything in the way of a drug which is to check the disease by giving it by mouth one must concentrate the urine. This is true of sandalwood oil or any derivative which you would care to substitute. If you are going to give sandalwood oil it should be given to the limit of the tolerance of the patient and the patient should take as small a quantity of fluid as possible. Certain cases who have an obstinate gonococcal urethritis that will flare up as a result of any local treatment (the urethra is so touchy you cannot put anything in it) can control their gonococcic infection to the extent of keeping it quiescent if they can take sandalwood oil up to thirty minims a day or more and keep down the intake of water. The oil does not cure but it controls the symptoms for an indefinite period of time. I have in mind one patient who could control his gonorrhea with sandalwood oil and just as soon as he discontinued it the urethritis would recur. He had been to several physicians each of whom had given him an epididymitis. One could tell the amount of sandalwood oil he was taking by the amount of pus in his urine. I sent him to South America and back on a cattle ship and he took nothing but his sandalwood oil in large quantity with him. He came back in the same condition so far as his gonorrhea was concerned. His general condition was much improved. I then turned him over to a physician who was in my office at that time whose fingers were as light as any I know and he succeeded in curing him by mechanical squeezing out of the gonococci through the passage of sounds.

To my mind antisepsis have a very superficial influence even with the so-called penetrating drugs. Antiseptics that are used in the local treatment of gonorrhea are, so far as I know, of no value whatever excepting during an acute outbreak of the disease at its onset or later when there is an acute superficial reinfection. It seems perfectly futile to bother with antisepsis for anything resembling a chronic gonorrhea. You have got to trust to hygiene, the condition of the patient and to mechanical treatment to clear up the lesions. Massage the glands, thus dislodging the gonococci and then irrigate them out. Treat the surface of the urethra with such drugs as zinc sulphate or with potassium permanganate or with silver nitrate, all used in very dilute strength, for the astringent healing effect which they have upon the epithelium of the urethra.

Meatotomy is often surprisingly efficacious in permitting the inflamed anterior urethra to drain. A patient came to me from New Jersey, sent by an osteopath who had been treating him. This man had been wise enough to have the patient's discharges examined at a laboratory but no gonococci had been found. The urethritis was very acute and very profuse and the man had what looked like acute gonorrhea except that there were no painful symptoms. I saw him after it had been going on for about a month. The patient had first been under the care of the osteopath and then went to another city to a urologist who glanced scornfully at the evidence produced and without submitting the pus to any examination, declared of course the patient had gonorrhea and proceeded to give him certain injections into his urethra which made him think he was better off with his osteopath. All the smears I could take did not reveal gonorrhea although it looked as much like a gonorrhea as anything could. He had a rather small meatus; it took a 16 or 18 French sound. I did a meatotomy and sewed him up and sent him home to his osteopath and told the patient to report back to me in the course of two weeks. In the course of two weeks the patient did not report to me, but the osteopath did report that the patient was entirely well. The meatotomy provided adequate drainage. When a chronic urethritis continues and notably when it continues after the gonococci have disappeared, if the trouble is in the anterior urethra, in almost all instances it is due to some kind of infiltrate which must be dilated. We all recognize that as the sound treatment of anterior urethritis after the gonococci have disappeared. On the other hand, it is not always recognized that

such an anterior urethritis if due to organized stricture can only be cured by cutting that clear. At the Mt. Sinai Hospital it is said that only complications warrant a urethrotomy. I vehemently disagree with that statement. Fibrous stricture even if of wide caliber of the pendulous or penoscrotal urethra requires urethrotomy.

Dr. —— in one of his books has described how an abscess of a penile gland should be very carefully cut on a slant so that no fistula may ensue. There is no better way one can insure a fistula than to incise the abscess in that way. One should cut directly down along the sinus tract to the opening in the urethra. Penile abscesses form with a sinus at each end, a minute opening onto the skin and one or more abscesses in between. You can cure them readily enough. The opening into the urethra is to be ignored. Simply put in a little local antiseptic and incise and curette right down to the urethra. You can always find the little urethral opening. It will usually heal of itself. If not, it will close to the patient's satisfaction under light chemical cauterization.

DISCUSSION

DR. LESTER M. FELTON, Worcester: May I ask if Dr. Keyes is in favor of using pyridium.

DR. EDWARD L. KEYES, New York: No.

DR. EDWARD L. MERRITT, Fall River: I think there are quite a number here who want to ask questions and possibly disagree and perhaps hesitate to disagree with a man like Dr. Keyes, but I have been noted for rushing in where angels fear to tread. I do not like to hear Dr. Keyes crucify himself upon the altar in saying that he was mistaken in the case he cites. Frankly, I doubt it. I honestly believe that if a male patient who has been infected with gonorrhea, and can show that there is no urethral discharge, has a clear urine and a negative prostatic smear and who is then allowed to go over a period of six months and returns with a clear urine, you must show me that this patient is going to develop acute gonorrhea and infect anybody. I think this patient had a reinfection from some other source.

I have got to plead guilty to being one of those who use permanganate. I think the multiple shocks do exactly the same thing he speaks of in passing the sound or massaging or dilating the little ducts along the urethra. I care not what irrigation is used, the chief functions of the irrigation are cleanliness and heat. I use potassium permanganate in very weak solution and think I am getting results.

I was frankly surprised to hear Dr. Keyes say that he discharged patients, if I understood correctly, while they still had some discharge and pus in the urine. I have sometimes let patients go over a period of time for a rest and then used various other forms of treatment when they returned, but I cannot conceive of discharging patients in that condition. I would like to ask Dr. Keyes if he has used gonococcus immunogen and if he considers it of any value.

Although taking issue with Dr. Keyes in these several points I have enjoyed his paper immensely, but I would like to hear from others and get some discussion.

DR. EDWARD L. PEIRSON, JR., Salem: I would like to ask what specifically he hoped to promote by using acriflavine.

DR. CHANNING S. SWAN, Boston: I appreciated Dr. Keyes' paper very much and I must say I agree with him absolutely in opposing the Janet method in acute urethritis. I have preferred injection of small amounts of mild antiseptic solutions and I support the objections which he has given to the Janet method. The only thing I would like to ask him about is whether he feels that sandalwood oil given with limited fluid is preferable to no sandalwood oil and mild bland fluid given every hour or oftener.

DR. KEYES: Yes.

DR. AUGUSTUS RILEY, Boston: I must say that I will have to differ with Dr. Keyes. In the first place in a lot of clinics in other cities they refuse to irrigate acute gonorrhea. I know a good many individuals and also clinics that limit the fluid. I use permanganate in preference to anything else. I do not care whether I give injections of silver salts or not. I feel that, if you are going to give irrigations as Dr. Merritt says, it is the heat and not the antiseptic values that helps, and I have found in many cases that permanganate used stronger than one to ten thousand is irritating to a good many patients and there is no question in my mind that some of these discharges are kept up by too strong irrigations. In fitting up the City Hospital clinic I had the authority to select the utensils used and I went in for things in a big way. I wanted large irrigating cans and I wanted large basins. These irrigating cans will hold a gallon and these basins will hold a gallon, and I insist on every patient getting his gallon or thereabouts of irrigation each time he comes to the clinic. As for the complications seen in the clinic (I speak of the City Hospital for I am not at the Boston Dispensary now) if we say acute epididymitis, the number we see is not enough to show the students. Personally I do not believe that an epididymitis occurs in a patient who is properly treated, particularly if that patient is properly coöperative. I do believe that if any instrumentation is done on an acute urethritis you are more apt to get an epididymitis. As to checking the invasion of the posterior urethra, it is hard in some cases to do it.

I also feel that there are different strains of

gonococci, and possibly a gonococcus will attack one person more virulently than another. We do see some cases that show symptoms a few days after their infection and I do believe that in the teens it is probably very virulent. I also feel that you take an old individual who gets an infection from a young individual and you see a very virulent infection.

I feel that all your metastases, all your infection of the blood stream are due to infection from prostatic abscess. About the only rough treatment I give in the acute stage is that I do not hesitate in these cases to massage their prostate and vesicles. I know that is against all rules of decent surgery, but it gets results. Quite often I have not hesitated to cystoscope men who had prostatitis.

Now as to Dr. Keyes' statement of the anterior urethra, I have found in some cases that I suspected a prostatitis and found none; in such cases the periurethral glands were causing the trouble. If these patients are examined carefully with an instrument in the meatus we will find an opening from which the pus is oozing. I have in mind one case especially. In this particular case he had a residual abscess just below his penoscrotal angle. I found that the source of his infection was in the glands. We can treat the urethra with all the solutions we want, but when we do not go after the man's prostate and vesicles we are not going to cure him.

Dr. Harold L. Leland, Lowell: I am sorry to say that our Lowell clinic is maintained on a short schedule on an average of only once a week and we are not addicted to very much irrigation. We feel that we have to place dependence upon the hygiene of the patient and lay a great deal of stress upon sex hygiene. Because of the financial conditions we do not dispense very much sandalwood, consequently we do dispense a great deal of water. We do feel that on the average run of patients frequent and copious urination does have a cleansing effect on the infected urethra. As a routine we use home treatment of local injections. During the subacute stage we feel it does have certain advantages. We have tried various types of injection. I think it means but little as to the particular type used; we are far more particular as to the manner in which it is used. All of our patients get treatments with sounds before they leave the clinic. I heartily agree with Dr. Keyes in the use of the urethra as the test tube. We take a moderate-sized sound and insert it only a short distance to begin with, gradually increasing the size and distance as the patient responds to treatment. We likewise suspect the prostates and we feel that a large number of prostates do show pus even though clinically they may not have symptoms of posterior involvement.

Dr. George G. Smith, Boston: I would be willing to have a cold in the head all the time if I could speak as charmingly as Dr. Keyes has tonight. He brought out some points which interested me particularly. I was very glad to hear him speak about the limitation of fluids because it has seemed to me that a good many urethrae were kept irritated by the constant flow of low gravity urine. I was interested in reading in Janet's textbook that the urethral mucosa is normally intended to carry a fluid that has a high degree of acidity and specific gravity and it is almost as poisonous to that mucous membrane to suddenly have the characteristic of the urine changed as to have the urine be acid. It is very interesting, I think, to see how differently we feel in regard to the value of irrigations of potassium permanganate or other solutions as we all get our cases well, on an average, in more or less the same length of time. Yet some men think potassium permanganate one of the worst and others think it one of the best. Personally I belong to the latter camp. I think if one uses a two-way irrigator instead of the usual nozzle in the early stages he avoids the repeated shocks that otherwise occur. I agree with the men who have referred to the use of fairly hot solutions. It is the heat and the cleansing quality or power to dissolve mucus which is probably responsible for its efficacy if it has any. It seems to me that irrigating every day with potassium permanganate increases irritation. I never do it more often than every other day.

Dr. Keyes: In the acute stages?

Dr. Smith: Yes, sir, in the acute stages. I agree with Dr. Keyes in the valuelessness of pyridium. I have tried that out and it seems to me it has done nothing of value.

Dr. Merritt: Dr. Smith has brought out a very important point in that the urethral mucosa is accustomed to a fairly high specific gravity urine and that under those conditions the gonococci flourish. Under these normal conditions the patient becomes infected. I believe that immediate steps should be taken to change what is the customary specific gravity, thereby changing the whole environment for that organism just as the pediatricians do in pyelitis.

Dr. Smith: May I ask if Dr. Merritt thinks that this urine penetrates the mucous membrane.

Dr. Merritt: Certainly I do not, but I do believe that there are quite a number of points that affect the cure. The heat does exactly the same thing as putting an infected hand or foot in hot soaks and I think that the diluting of the urine does inhibit the growth of the gonococcus on the mucosa.

Dr. Fletcher H. Colby, Boston: One thing that is lost sight of in talking of gonorrhea is the pathology of the disease. It has been so well shown many times that even in the very earliest acute stage of the disease the organisms are so

far beneath the surface that no irrigating solution can possibly get at them. In other words, the sterilization of the urethra is not only impracticable but absurd so that less attention perhaps should be paid to what sort of solution you are using so long as you do not do the patient any harm. On the other hand, the mildest solutions used hot do seem to cleanse the urethra, lessen the discharge and make the acute stage of the disease shorter, which is so important. If it does accomplish that, then your treatment is of avail. Another point is what Dr. Riley touched on, the different strains of the gonococcus. The most recent work in Rochester in studying the gonococcus from the point of view of the joint involvement has shown that there are from fifteen to twenty strains, some of which react very quickly to heat. Some of them require temperatures of as high as 110°, which the body cannot stand.

Dr. Samuel C. Mintz, Boston: I enjoyed Dr. Keyes immensely. He startled me in a great many of his ideas of treatment because we have been more or less conservative in Boston. Sounds we were always more or less careful about, particularly in any acute condition, but I am interested as to what type of sound Dr. Keyes uses, whether it is the straight sound, and whether he goes beyond the cut-off, and about the massage of the periurethral glands. We at the Beth Israel are not treating a great many venereal cases unfortunately, but the dozen cases that we have there we treat with hot permanganate beginning with about one to ten thousand and gradually reducing to about one to five thousand, followed with about one-fourth per cent of protargol. We have cured our cases within three months including some of them, probably about fifty per cent, that had prostatitis. I still like permanganate. I have used it over a great many years but I must confess I shall give a great deal of thought to what Dr. Keyes has said and may benefit by some of his ideas.

Dr. Myron J. Hahn, Jr., Boston: I certainly am interested in Dr. Keyes' paper. He always talks very well and is very interesting. We follow along much the same line that Dr. Mintz has just outlined. I, too, wondered about the sound and think that probably Dr. Keyes would use the sound only if he were convinced that something had to be done to the urethra. I do not pass sounds when there is a free discharge unless we feel there is stricture along the urethra or some definite lesion that needs dilatation. In the subacute stages we have passed sounds and massaged the urethra over it. We have had some success in the use of the urethroscope and in cutting the openings of these glands in the urethra and trying to dilate those openings with a small filiform bougie. Sometimes you can, under ordinary circumstances (I know these openings are very small), get into them and then by massaging you can express a little material from them and I think many times that helps.

Dr. O. R. T. L'Esperance, Boston: I extend my enthusiastic thanks to Dr. Keyes for his paper. I admire him particularly for one thing, because he has come here with his mistakes. I think the great difficulty of venereologists is that they do not see their own mistakes and do see those of others. They come to us. In regard to treatment, I think it depends on the class of patients you have to treat. In my experience I have seen more varieties of gonorrhea than is the experience of most other men, because I have been associated with clinics like the Boston Dispensary and the Massachusetts General Hospital where the types of gonorrhea vary like night and day. I have been in Dr. Keyes' clinic in New York and I saw a type of work there that I did not see anywhere else. In regard to the various forms of treatment, I have not found any of these of any value. In fact, Dr. Keyes' favorite, acriflavine, has never been used in my office. I have not given a drop of sandalwood oil in eight years. I treat gonorrhea and nothing else and I have to treat patients. I do not treat gonorrhea. The patients have been kind to me. I must cure them or I would not stay where I am. I have had the opportunity to observe the type where, as Dr. Keyes has said, nothing was done for the patient at all. I have in mind a young man who had no treatment for three weeks. Local treatment of permanganate made him very comfortable in a very short time. I believe permanganate should be given in a certain strength and always a fresh solution, at least 110° hot and gently given. I have always felt that a patient should receive some consideration, some gentleness in treatment. I wish again to thank Dr. Keyes for coming here tonight.

Dr. George B. Whitney, Haverhill: Like Dr. L'Esperance I have to treat patients and possibly incidentally treat the disease. It has been my custom to flood the urethra with large quantities of pale pink permanganate with very little pressure and I have given them the sandalwood oil and various other things they could afford. After two or three weeks, if God was good to them, the discharge lessened, the glands cleared up, and they got well in due course after perhaps some massage. If conditions were different, maybe it took three or four more doctors to get them well. If I had put them on waiting treatment to any great extent I am sure my prestige would not have been enough to keep them coming to a happy solution. Some of my patients have an awful time. Some of them get well happily. Up our way some of them are very well able now to spend a lot of time sitting about soaking the organ in hot water. It seems to me that helps very much.

DR. WALTER D. BIEBERBACH, Worcester: We have gone through about the same routine and with about the same results. As for the question of whether applications of hot solutions to the urethra are of value, you generally accomplish just as much with hot saline soaks until the acute inflammatory condition subsides. I was pleased with Dr. Keyes' remarks tonight in mentioning the question of when we can tell whether patients are cured and I shall have to say that I disagree with Dr. Merritt for I can recall several cases I have discharged as cured whose microscopical examinations were negative to pus cells over a period of several months. I have had the patients return (with what I believe to be honest histories) with pus and organisms which were gonococci; they were intracellular gram negative diplococci. I would like to ask Dr. Keyes, with reference to his acriflavine, what form he uses. I have used the neutral acriflavine with considerable infiltration of the urethra following and I have used other forms in which I have not had this same result. Probably he will tell us what form of acriflavine he uses.

DR. J. DELLINGER BARNEY, Boston: I understood Dr. Keyes to say that the gonococcus disappears in three years, and perhaps in one year. We heard last spring from Dr. Zinsser. I do not know just the number of years, but I think he said the gonococcus might persist for forty years in the same individual. I do not quite understand it and perhaps Dr. Keyes can set us straight on that point. I had always taken as gospel what Dr. Keyes has said, that it did disappear in three years. I also want to say a word about permanganate as to why Dr. Keyes should speak so lightly of it. We have, at the Massachusetts General Hospital, used it for years. We are careful not to get it too strong and we have it hot. I have used it in my own practice as one thing which I thought was of value, switching occasionally to other things, so that it was interesting to hear that in his hands it was not so well thought of.

DR. KEYES: I seem to have made myself misunderstood very well, chiefly on the one point, in using sounds on acute urethritis. I do not use them. I agree with Dr. Riley. I rather took it for granted that you would assume that I did not mean to say that I used any sounds or catheters when the urethra is acutely inflamed.

I am interested to see that the prevailing method employed in this part of the country is potassium permanganate. I do not believe that is true in my city. I used it when Janet first brought it out. It is to be said for your consideration that permanganate treatment is the favorite one in France and England. The heat doubtless is of importance.

I am most interested in the fact that none of you have insisted on the peculiar antiseptic qualities of any drug. To me that is a distinct advance. All discussions I have heard on treatment of gonorrhea have been arguments by different people on the basis of the antiseptic effect of their drug. I think that the ideas that have been expressed even among yourselves and chiefly against me, on this matter of permanganate for example, illustrate well that you get the knack of using a certain substance successfully on the physical basis (heat for instance, and the force with which the fluid is injected) and you find the formula which suits your hands and minds and works with your patients. I am not urging anybody to change.

The type of acriflavine is the Boots, sold in this country quite widely and I had supposed the neutral acriflavine was much the same.

Immunogen, Dr. Merritt, I have not used. I don't know anything about it.

As to dilution of the urine in comparison with concentration of it, I happen to be impressed by that subject because I see so many so-called pyelitis cases. For a number of years when I was in charge of the Hudson Clinic down town (it was an enormous clinic; we treated over a hundred cases a night of badly controlled sailors, longshoremen and laborers) we used the dilution and the alkalis and apparently with about as good effect.

As to sounds, I use sounds only when the patient is approximately getting rid of his gonococci or is hanging onto them weeks and weeks after he should have been rid of them. I do not use the straight sound. The first sound which is introduced is a twenty French size and possibly that is done two or three times before I venture to go into the posterior urethra.

I have not mentioned the prostate and seminal vesicles at all. The subject is too vast and too confused for me to handle in a talk of this kind. I do not think one can generalize on the subject.

I also quite agree with that question of periurethral reinfection. Dr. Colby mentioned the fact that there is no sterilization of the urethra to be expected from drugs. I almost agree with that but if you get the patient before the meatus is swollen (if the patient comes in the first twenty-four hours) I think it can be sterilized in most instances with a variety of drugs, but beyond that of course I quite agree that it never occurs. But there are cases where we can get them well in the course of two or three days and discharge them in the course of two or three weeks.

Whether the gonococcus lives three years or forty, I am sure that all agree that in the female a gonorrhea apparently persists for much longer than it does in the male and I have known an instance, a woman who divorced her husband for giving her gonorrhea and remained literally single for seven years and then took on my

friend as a friend and gave him a gonorrhea. So she had had the infection for seven years. I do not happen to have known a man to harbor the gonococci more than three years. The only exception, literally, I have met was one man who apparently carried his gonococci eight years. He was married. He always struck me as a most exemplary church-going person. The last time I saw him he was in an obscure hotel in the East End of Paris and his wife shortly after that divorced him, so that one exception I refuse to count.

TREND OF CASES OF GONORRHEA UNDER TREATMENT OR OBSERVATION IN THE UNITED STATES*

BY LIDA J. USILTON, A.B.†

DESPITE the efforts of all those interested in public health to prevent, or at least to control the spread of gonorrhea, its wide dissemination remains unchecked. One of the principal factors which presents an obstacle to the prevention and control of gonorrhea is the task of determining its true prevalence, due to the mild character of many of the cases and the difficulty in isolating the gonococcus in cases which have passed the acute stage.

The results of recent surveys by the United States Public Health Service in coöperation with several social agencies to determine prevalence of venereal diseases in representative communities have brought out more forcibly than ever before the almost insurmountable difficulties to be encountered in such an effort. In spite of many irreconcilable reports from various treatment sources it is felt that it has been possible to establish a base line, representing the very minimum of prevalence rates in 25 communities throughout the United States. Using the data assembled in these original surveys as a base line, the direction of the trend of cases of gonorrhea constantly under observation or treatment in the United States has been determined. Throughout this paper the term "prevalence" will refer to the number of persons under treatment or observation for gonorrhea day by day.

These original surveys were made during 1927[1]. After a three-year lapse 16 of the same communities were resurveyed. The resurveyed territory included the 14 Communities[2] (comprising six counties in four States with more or less rural population, eight cities scattered throughout Illinois, West Virginia, Kentucky and Arkansas with populations of 100,000 or less) and two States. In Oregon[3] the resurvey was State-wide, whereas in New York[4] it excluded New York City.

*Read by the Secretary at the meeting of the Neisserian Medical Society of Massachusetts, at Boston, February 17, 1933.

†Usilton—Associate Statistician, U. S. Public Health Service. For record and address of author see "This Week's Issue," page 1027.

METHOD OF RESURVEY

The manner of conducting prevalence surveys has been set forth in detail in the "Study of the Prevalence of Venereal Disease in the United States" published in Venereal Disease Information, Vol. 11, No. 2. In order that the data might be comparable the resurvey was handled in a similar manner in each community. Every physician, clinic, hospital and other agency licensed to treat the ill received a questionnaire on which to record the number of cases of gonorrhea actively under treatment or observation as of a given date, the data to be classified by sex and race of the patient and stage of the disease. The stage of the infection was reported as acute and chronic. Acute was designated as those cases in which not more than six months had elapsed since the approximate date of infection. Chronic included all those in which more than six months had elapsed. So far as possible all factors which might affect the completeness and accuracy of the data were accounted for. Personal contacts were made with all medical societies and State and local health authorities in an effort to secure their influence in having the physicians coöperate not only in filling out the questionnaire but also in giving as complete and accurate data as possible. Practically all questionnaires were returned.

Undoubtedly there are uncontrolled factors that do affect the prevalence rates. However, these factors make for understatement rather than overstatement of the problem, and it may be authentically stated that any estimates quoted in this paper represent the very minimum of the extent of the prevalence of gonorrhea in this country. These uncontrolled factors, such as availability of free treatment, extensiveness of social service work in some communities, the inclusion of non-resident cases, the environmental and social aspects of the community itself, do much toward preventing a fair comparison of prevalence rates between individual

communities, but since these communities are more or less representative of the country as a whole a composite rate may be used with some assurance that it represents the minimum number of persons who day by day are under medical care for a Neisserian infection.

COMPARATIVE PREVALENCE RATES IN THE 16 COMMUNITIES RESURVEYED

In the original survey of the 25 communities representing reports from treatment sources including 30,746 physicians and 1,101 public institutions, hospitals, clinics, etc., serving approximately 20 per cent of the total population, it was estimated that there were 474,000 cases of gonorrhea constantly under observation or treatment. From data obtained in the resurvey, there has been a decrease in this estimate ranging from 10,000 to 20,000 cases in the three-year period. In table 1 are shown the resurvey results for 16 of the communities as compared with the original findings. These 16 communities represent reports from medical sources treating approximately 7,000,000 of the population of the United States.

There appears to be a downward trend in the prevalence rate for cases of gonorrhea reporting for treatment, not only in the 14 communities but also in Oregon and upstate New York. This decrease is 5.5 per cent for the 14 communities and two per cent for Oregon and upstate New York. In the light of a decidedly upward trend found in a study of syphilis[5] made simultaneously with the present gonorrhea survey, this downward trend loses any semblance of encouragement that the present-day efforts toward the prevention and control of gonorrhea are being effective. Since gonorrhea is contracted in a manner similar to that of syphilis, the trends should be in harmony. Undoubtedly the factors responsible for increasing the syphilis rates are the very ones that are tending to show a decrease in the gonorrhea rate. The life cycle of gonorrhea is shorter than that of syphilis; the duration of treatment and follow-up also is shorter, and the visible signs and symptoms are less severe. The patient's mental attitude toward gonorrhea is, as a rule, much less serious than it is toward a syphilitic infection. The conditions prevailing in some of the public clinics probably have something to do with this attitude on the part of the patient. A study of the patients in five clinics in St. Louis[6] showed that the duration of treatment and observation of gonorrhea was less than one-half that of syphilis.

STAGE OF INFECTION AT WHICH THE PATIENT SEEKS TREATMENT

In table 1 is shown the percentage increase or decrease in prevalence rates per 1,000 population by the stage of the infection at which the patient seeks treatment. In 15 of the communities the case rates for the patients seeking treatment early in the infection increased, with a proportionately greater decrease in the chronic cases. This increase of cases coming early to treatment in the 15 communities was true for both the males and females. The composite increase in the six counties and eight cities was greater among the males than females, but in Oregon the increase was greater among the females. This seeking of treatment early in the gonorrheal infection in these 15 communities is the most encouraging result of the resurvey, and should lead all those who are interested

TABLE 1

INFLUENCE OF STAGE OF INFECTION ON ADMISSION ON CASE RATES PER 1,000 POPULATION FOR GONORRHEA SHOWING PERCENTAGE OF INCREASE OR DECREASE, 1930 AS COMPARED WITH 1927

	Acute			Chronic			Total		
	1927	1930	Per cent increase or decrease	1927	1930	Per cent increase or decrease	1927	1930	Per cent increase or decrease
14 Communities									
Number	1535	1913	24.6	1534	1246	—18.8	3069	3159	2.0
Case rate	2.56	2.92	14.1	2.55	1.90	—25.5	5.10	4.82	—5.5
Oregon									
Number	1167	1410	20.8	896	791	—11.7	2063	2201	6.7
Case rate	1.33	1.48	11.3	1.02	.83	—18.6	2.35	2.31	—1.7
Upstate New York									
Number	5754	5284*	—8.2	4704	5454*	15.9	10458	10738	2.7
Case rate	1.05	.91	—13.3	.85	.94	10.6	1.90	1.85	—2.1
Total									
Number	8456	8607	1.8	7134	7491	5.0	15590	16098	3.3
Case rate	1.21	1.16	—4.1	1.02	1.01	—1.0	2.23	2.17	—2.2

*See page 596, Venereal Disease Information, November 20, 1931—Division as to acute and chronic made on percentage basis.

in public health to continue their efforts in bringing to the attention of individuals the desirability of seeking treatment while in the infectious stage.

The resurvey results from upstate New York indicated a decrease of 13 per cent in the number of those infected who sought treatment during the acute stage of the infection with an 11 per cent increase in those who came for treatment after it had reached the late stages. Except for the results of the resurvey of syphilis, one might be tempted to view these lowered prevalence rates for acute gonorrhea as an index of the success with which the health officers in upstate New York were meeting in their efforts to bring gonorrhea under treatment. A decrease of 13 per cent in acute infections may be interpreted to mean that progress toward the elimination of the disease had been made in a three-year period, but with only one resurvey as the basis, it is unwise to place too much confidence in such results.

INFLUENCE OF SEX ON THE PREVALENCE RATES

In table 2 the percentages of increase or decrease among the males and females of the 16 communities resurveyed are shown. The percentage decrease in females coming to treatment has been proportionately higher in the six counties, eight cities and Oregon than it has among the males. In upstate New York the decrease was entirely in the males. This again is taken as a good sign for at least as many women in upstate New York sought treatment for their infection in 1930 as did so in 1927. The attitude of the women toward seeking treatment is one of chief concern to health officers, and is an even more vital part of the problem than that of getting the males to come to treatment. There are several factors which probably retard this effort, among which are the natural reticence on the part of the female to admit the infection, and the difference in the anatomical structure which makes the disease less noticeable. However, with a conservative estimate of 166,000 fresh cases of gonorrhea each year among the females the problem becomes one of real social importance. The disastrous results are experienced not only in the lowered efficiency of the infected individual, but also causes 50 per cent of the so-called one-child sterility, in which the woman, having borne one child, never conceives again[7].

Ophthalmia neonatorum is the most tragic sequel of gonorrhea, and the percentage of blindness in the newborn is 3.3 per cent of the total blindness occurring in the United States[8]. Two decades ago ophthalmia neonatorum was the greatest single cause of blindness in children, accounting for 22 per cent of the pupils entering the Missouri School for the Blind. Through agitation among the physicians of that State and the passage of a law in 1921 making compulsory the instillation of one per cent silver nitrate into the eyes of newborn infants, the incidence of ophthalmia neonatorum among new pupils entering this school has been decreased to nine per cent[9]. Snow[10] states that ophthalmia neonatorum is caused in two-thirds or more of the cases by gonococcus infection.

The marital status of the gonorrhea patient in the clinic was reported in a study made by the United States Public Health Service. It was found that of 925 patients there were twice as many single as married. This was true of both sexes, both white and colored. There was

TABLE 2

EFFECT OF SEX ON CASE RATES PER 1,000 POPULATION FOR GONORRHEA, SHOWING PERCENTAGE OF INCREASE OR DECREASE, 1930 AS COMPARED WITH 1927

	Males			Females			Total		
	1927	1930	Per cent increase or decrease	1927	1930	Per cent increase or decrease	1927	1930	Per cent increase or decrease
14 Communities									
Number	2179	2276	4.5	890	883	—.8	3069	3159	2.0
Case rate	7.18	6.96	—3.1	2.98	2.69	—9.7	5.10	4.82	—5.5
Oregon									
Number	1447	1538	6.3	616	663	7.6	2063	2201	6.7
Case rate	3.10	3.08	—.6	1.50	1.46	—2.7	2.35	2.31	—1.7
Upstate New York									
Number	8065	8219	1.9	2393	2519	5.3	10458	10738	2.7
Case rate	2.96	2.87	—3.0	.86	.86	*	1.90	1.86	—2.1
Total									
Number	11691	12033	2.9	3899	4065	4.3	15590	16098	3.3
Case rate	3.31	3.22	—2.7	1.13	1.11	—1.8	2.23	2.18	—2.2

*No change.

very little difference between the percentage of the married male and female among the colored, but among the white gonorrhea patients reported as married, the percentage of females was twice as high as the males. These figures indicate that probably a large proportion of the female gonorrhea is essentially innocent.

COMPARATIVE INCIDENCE OF GONORRHEA AND OTHER CONTAGIOUS DISEASES

There is much evidence available to reveal that even those cases of gonorrhea which actually come under medical care are incompletely reported and yet there were twice as many new cases reported in a year as cases of diphtheria, more than four times the number of cases of smallpox and six times the number of typhoid fever cases. In fact, in the 26 states where the reporting of tuberculosis (all forms) is compulsory there were 14,000 more new cases of gonorrhea reported than cases of tuberculosis[11]. This preponderance of gonorrhea among the reportable communicable diseases is even more pronounced when consideration is given to the fact that approximately 34 per cent of the cases of gonorrhea do not come to treatment while in the acute stages, and that numerous cases of gonorrheal infections never seek any medical treatment from physicians, but either are untreated, self-treated, or receive treatment from unauthorized sources.

COMPARISON OF PUBLIC CLINIC VERSUS PRIVATE PRACTICE CASES

In table 3 are given the percentage of cases per 1,000 population under observation or treatment for gonorrhea which were under the care of the private physician as compared with those in public clinics. In the resurveyed eight cities of 100,000 population or less, 85 per cent of the cases were under private practice. The distribution between those who came to the private practitioner in the acute stage of infection is quite similar to that for the public clinic. It will be noted that a higher percentage came to both the private practice and the public clinic in the acute stage than waited until the disease reached the chronic stage. Practically the same conditions existed in the six counties. In Oregon where the only free public clinic is in Portland, the percentage of cases in the hands of the private practitioner is much higher. In upstate New York the percentage of public clinic cases is twice that for Oregon, but for both the public clinic and private practice the chronic cases form a higher percentage of the total patient population than do the acute cases.

During the three-year period from 1927 to 1930 there was a two per cent increase in cases seeking treatment for gonorrhea in the public clinic. This increase in public clinic cases probably is largely due to the depression. There was a decrease in the public clinic of patients who sought treatment during the acute stage and a 16 per cent increase in those who came to the public clinic with a chronic infection. In all of the resurveyed communities the percentage of cases of gonorrhea in public clinics versus private practice is much lower than in the total 25 communities originally surveyed, being only nine per cent in 1930 as compared with 21 per cent in 1927. This fact is due to the inclusion in the 25 communities of a number of large cities with more adequate clinic facilities, such as Philadelphia[12], Baltimore[13] and New Orleans[14].

In the 25 communities surveyed in 1927 the data were gathered separately for the two races where there was a significant number of colored population. Table 4 gives this distribution by indicating that 27 per cent of the Negroes under treatment for gonorrhea were being treated

TABLE 3

THE PERCENTAGE OF CASE RATES PER 1,000 POPULATION FOR GONORRHEA TREATED IN PUBLIC CLINICS AND PRIVATE PRACTICE, BY STAGE OF INFECTION IN 1930

	Eight cities*		Six counties		Oregon		Upstate New York		Total	
	Case rate	Per-centage	Case rate	Per centage	Case rate	Per-centage	Case rate	Per-centage	Case rate	Per-centage
Public clinics										
Acute	.43	55.8	.29	58.0	.06	60.0	.07	43.7	.10	50.0
Chronic	.34	44.2	.21	42.0	.04	40.0	.09	56.3	.10	50.0
Private practice										
Acute	2.67	60.3	2.29	63.3	1.41	64.1	.84	49.7	1.07	54.0
Chronic	1.76	39.7	1.33	36.7	.79	35.9	.85	50.3	.91	46.0
Total										
Public clinics	.77	14.8	.50	12.1	.10	4.3	.16	8.6	.20	9.2
Private practice	4.43	85.2	3.62	87.9	2.20	95.7	1.69	91.4	1.98	90.8

*100,000 or less population.

in public clinics as against 21 per cent of the white patients. Of the total cases reported the percentage treated in public clinics was slightly higher for the males than for the females.

TABLE 4

THE PERCENTAGE OF THE TOTAL CASES OF GONORRHEA UNDER TREATMENT IN PRIVATE PRACTICE AS COMPARED WITH THE PERCENTAGE IN PUBLIC CLINICS, 1927

Sex and color	Percentage under treatment in	
	Private practice	Public clinics
Total	78.8	21.2
White	79.2	20.8
Colored*	73.2	26.8
Males	77.9	22.1
Females	81.4	18.6

*Colored included in four surveys as against eight for all white only.

ESTIMATED ANNUAL INCIDENCE OF FRESH INFECTIONS OF GONORRHEA

On all the resurvey questionnaires and on some of the more recent original prevalence studies a section was added requesting the number of new cases seeking treatment for gonorrhea during the month preceding the survey date of the one-day census, these new cases to be shown separately for sex of the patient and the stage of the infection at which treatment was first sought. The one-month data were used as representing 1/12 of the cases infected in one year.

Philadelphia was the first of the surveyed communities to include in the questionnaire an inquiry into the incidence of the disease. Similar data are now available from 24 communities with a population of approximately 11,750,000. The incidence rates per 1,000 population for these individual communities are shown in table 5. Although the urban population is proportionately higher than is desirable for comparison with the distribution of the total population between rural and urban in the United States, both groups are included in the data and geographically the communities are fairly representative. In Oregon 49 per cent of the population surveyed is rural, while in upstate New York there is about an equal division between rural and urban territory, and the communities vary in population up to half a million. Many of the 14 communities surveyed had a significant percentage of Negro population which explains the inflation in the incidence rates in these communities. In the original estimate based on findings in Philadelphia alone, the information was confined to the rate per 1,000 persons re-

TABLE 5

ANNUAL INCIDENCE RATES PER 1,000 POPULATION FOR GONORRHEA IN 1930 AMONG A POPULATION OF 11,740,561 PERSONS

Locality	Number of cases			Rate per 1,000 pop.			Population
	Total	Acute	Chronic	Total	Acute	Chronic	
Oregon State	13,440	9,480	3,960	14.1	9.9	4.2	953,786
Upstate New York	43,044	29,952	13,092	7.4	5.2	2.2	5,787,805
Philadelphia, Pa.	31,896	17,472	14,424	15.5	8.5	7.0	2,064,200
Charleston, W. Va.*	2,880	1,812	1,068	47.7	30.0	17.7	60,411
New Orleans, La.	9,696	7,260	2,436	21.1	15.8	5.3	458,762
Dallas, Texas	9,060	5,784	3,276	34.8	22.2	12.6	260,475
Birmingham, Ala.	7,416	4,656	2,760	28.5	17.9	10.6	259,678
Jefferson Co., Ala. (excl. of Birmingham)	2,796	1,380	1,416	16.3	8.0	8.3	171,815
Baltimore, Md.	8,976	6,312	2,664	11.2	7.9	3.3	804,874
Five Counties in Md.	1,776	1,380	396	6.7	5.2	1.5	263,482
14 Communities—Total	11,832	9,012	2,820	18.0	13.7	4.3	655,273
14 Communities in detail:							
Peoria, Ill.	2,352	1,764	588	22.4	16.8	5.6	104,969
Huntington, W. Va.	1,284	1,116	168	17.0	14.8	2.2	75,572
Wheeling, W. Va.	1,092	816	276	17.7	13.2	4.5	61,659
Decatur, Ill.	684	576	108	11.9	10.0	1.9	57,510
Lexington, Ky.	1,344	1,044	300	29.4	22.8	6.6	45,736
Eldorado, Ark.	504	336	168	30.7	20.5	10.2	16,421
Paducah, Ky.	384	252	132	11.4	7.5	3.9	33,541
Texarkana, Ark.	480	372	108	17.5	13.6	3.9	27,366
LaSalle Dist., Ill.	108	108	—	4.1	4.1	—	26,180
Pike Co., Ky.	480	420	60	7.6	6.6	1.0	63,267
Logan Co., W. Va.	2,652	1,776	876	45.3	30.3	15.0	58,534
Morgan Co., Ill.	120	120	—	3.5	3.5	—	34,240
Greenbriar Co., W. Va.	108	96	12	3.0	2.7	.3	35,878
Scott Co., Ky.	240	216	24	16.7	15.0	1.7	14,400
Total	142,812	94,500	48,312	12.2	8.1	4.1	11,740,561

*Exclusive of Charleston City Clinic cases for which data by stage of infection were not available.

porting with early infections. It was felt that by so doing a minimum of fresh infections occurring annually would be shown. It is interesting that with five times the population surveyed the composite incidence rate for acute infections closely approximates that for Philadelphia. Although the incidence rates range from three to 30 per 1,000 population for acute infections the composite rate is 8.1 as compared with 8.5 per 1,000 for Philadelphia. Thus the preliminary estimate for the United States of 679,000 acute infections of gonorrhea seeking treatment for the first time during the year gains added significance. Since there is no wide dispersion in these rates no adjustment of the estimated incidence will be made. It is worth noting, however, that for every two cases of gonorrhea which seek treatment while the disease is in the acute stage, a third case fails to report until after the infection has reached the chronic stage.

SUMMARY

From the original survey data it was estimated that there were 474,000 cases of gonorrhea constantly under treatment or observation in the United States. The resurvey indicated that this number had been decreased by from 10,000 to 20,000 cases in the three-year period.

The decrease in gonorrhea cases was due principally to infected persons failing to seek treatment. This statement is based on the upward trend of syphilis cases under treatment during the same three-year period. Both infections are contracted in a similar manner and as syphilis presents more of a treatment problem, an upward trend in syphilis should predicate an upward trend in gonorrhea.

There was a greater decrease in the males who sought treatment than in the females.

In fifteen of the sixteen communities resurveyed there was an increase in the percentage of cases which came for treatment while the infection was in the acute stage.

There were twice as many new cases of gonorrhea reported in a year as cases of diphtheria, more than four times the number of cases of smallpox and six times the number of typhoid fever cases. In the 26 states reporting cases of tuberculosis (all forms) there were 14,000 more cases of gonorrhea reported than cases of tuberculosis.

During the three-year period from 1927 to 1930 there was an increase of two per cent in cases which sought treatment for gonorrhea in the public clinic, and this increase was entirely among the chronic cases.

In the 16 resurveyed communities the proportion of total cases which came to the public clinics was nine per cent as compared with 21 per cent in the 25 originally surveyed communities; however, the latter group includes such large cities as New Orleans, Baltimore, and Philadelphia where clinic facilities are more adequate than in many other localities.

It has been estimated that there are 679,000 fresh gonorrheal infections in the United States each year. This estimate was based only on the number who sought treatment in the acute stages.

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Discussion at the Meeting February 17, 1933

Dr. Walter D. Bieberbach, Worcester: At the conference to decide on what we would have for this meeting we thought instead of selecting a speaker we would have a sort of round-table conference on the problems and matters that we might bring out in reference to the treatment of gonorrhea; problems that are concerning us as individuals, and that we might outline some routine form of treatment. But this evening, first, I would like to call on our Commissioner, and ask him to start this conference by telling us of some of the problems he may have in mind.

Dr. George H. Bigelow, Boston: I appreciate the opportunity of being here. I think I should like to have a chance to speak on some of the points that may be brought up in the discussion, later. The present economic situation is interesting, and it is very difficult. We hear in the papers eternally how favorable the effect is on the health of the people and yet I cannot think the empty bellies and the harassed minds of the people are going to be quite so favorable in effect as superficial figures would suggest. In regard to the problems connected with gonorrhea and the control of gonorrhea, I think we are enormously fortunate in having

a group like this (which so far as I know is unique in the experience of a health department) that we can meet with and discuss some of these matters. I think that Dr. DeWolfe has not presented to the group his visits to doctors in connection with the problems of gonorrhea and syphilis. He has visited something over a thousand doctors, now, in their offices and has discussed with them the problems of gonorrhea and syphilis in their practices and the summary of that is quite enlightening, because one of the important control features is that the quantity and quality of service available, and the accessibility of service to infected individuals should be increased as time goes on. How that can be done, particularly outside of the larger centers, is pretty baffling, and is a problem it would be interesting to get comments on. In Alabama and some of the Southern States they claim to have made some progress in having a physician designated by the local medical group as the individual who will treat for that community or group of communities both gonorrhea and syphilis and there have been resources available so that the person designated in that area might have some special training. That has not seemed to be practical in Massachusetts. In the smaller communities I think there is some hesitation in a doctor wanting to be known as specializing in these diseases because it may keep others away. A suggestion has been made that out of certain of our clinics, or in connection with them, individuals might be designated rather as associate clinicians. For instance, with a clinic like Holyoke, individuals in two or three of the surrounding communities might be designated as associates but who would perhaps be on the staff of the clinic though only attending occasionally, and yet to whom the clinic might refer cases that came to it who were unable to travel considerable distances to the clinic. It is an absurd situation in some communities where the town gives the individual more money for transportation to a remote clinic than would be necessary in that community for a reasonable fee in the doctor's office. Whether that is one way of designating somebody, whether that is practical or not, is yet to be demonstrated. There are a number of problems I have just been talking over with Dr. Nelson that we are interested in. As I said, I should like to listen to the discussion and, if I may, perhaps say something that may occur to me later. I am grateful to have this opportunity to meet with you and we do need your advice on reasonable steps that may be taken toward making services more adequate and more readily available. I think it would be interesting to get the impression of some of the men in regard to the influence of economics on the situation, perhaps not so much on how many there are who don't pay the bill, but whether economics is keeping people away from treatment.

DR. BIEBERBACH: Dr. Cox has a few remarks in reference to this subject and we would like to hear his side of the problem.

DR. OSCAR F. COX, JR., Boston: This Society is in its third year of existence, this being our first meeting of the third year. Many of us remember that at the meeting of organization it was stated that it was to be a working society, not just a group of men to meet from time to time to be entertained by brilliant speakers. The Society was formed and finally a constitution was drawn up, and like all good constitutions there was a statement of the objects of the Society. It is found in Article 1, Section 11 of the Constitution. The first paragraph says under the title of "Objects of the Society": "1. An intensive effort to reduce the incidence of gonorrhea. 2. Research in the medical and social pathology of this disease. 3. The improvement in and the standardization of the treatment of the disease and its complications in both the male and female." I think these statements are pretty definite and we all understand what they mean.

We have already had six meetings. One was devoted to a discussion of vulvovaginitis, following which my ideas were more confused than before. Nothing, so far as I know, has been done about it since. We had expressed extreme opposite opinions in regard to that subject. We have been entertained several times by brilliant speakers, I have enjoyed them and I think all of us have. I have been repeatedly reminded that I am impatient, this I admit. It has also been called to my attention that Rome was not built in a day. But to the best of my knowledge it was more than talk that finally did build Rome. I feel that our existence (I mean the existence of the Society) can only be justified by adhering to the objects as stated in the Constitution. I think none of us are interested in just a social gathering. Our problems certainly are many and it is extremely difficult to know just where to start and what to do, and I hope that this meeting will prove to be a really successful attempt to get started.

It occurred to me that these various things we are trying to do something about might possibly be divided into three general groups. Under number I we might include the great many things pertaining to gonorrhea that we are all perfectly willing to admit we know nothing about. This situation is covered in the second paragraph of the statement of our object in the constitution. I feel we are not yet ready to do much about these great problems but I hope perhaps at some future time something of a con-

structive nature may be started pertaining to them. Under number II we might include the things we as a Society are more or less unanimous about, but which our experience teaches us are perhaps not any too well understood by the medical profession as a whole. Under III we might include the things that we as a Society are in considerable disagreement about — extreme disagreement. In regard to this number III group it seems to me we could make an attempt to get together on these subjects and it might be feasible to have a committee appointed, perhaps a fairly large one, that would be willing to work and one thing they might do would be to investigate the literature pertaining to a particular subject. Let us take vulvovaginitis, for instance. There is much in the literature about it and I think that it would be worth while to have the committee summarize the literature. And, as we already know, there is one group among us that believes in one line of therapy and another group that believes just as strongly in an exactly opposite line. This committee might investigate the various clinics where the different types of work are being done and, with the report of what they find in the literature, submit their findings to the Society. It seems to me that with that information we might come to an agreement. It occurs to me that it may be that both these extremes get equally good results. If so, I should suggest that we stop talking about the other fellow. On the other hand, if it is pretty definitely shown that one line of treatment is superior to another we should admit it.

In regard to the number II group, that is the one containing the various things that we more or less agree upon but find are not being generally practiced, we might appoint a committee (I should suggest a small committee in this case) made up of gentlemen with considerable literary ability and have them restate some of the things already told so well by Dr. Nelson and have those statements published either in pamphlets or in the *Journal*. If these statements could be published from time to time I am sure it would have some beneficial effect on the present deplorable handling of gonorrhea throughout the state. In conjunction with this literary effort I should like to see this Society sponsor a very careful and complete history of gonorrhea. That has been spoken of in some of our Executive Committee meetings from time to time, and that is as far as it has gone. This perhaps has nothing specifically to do with our problems but I think in the long run it would prove to be a worthwhile thing. I should also like to see either presented to the society in the form of a paper or have the society publish a detailed description of the anatomy of the genito-urinary tract. We have a member well qualified to do that in Dr. Barney. He would be glad to do it and submit it to the society in any way we wanted it. There is another thing that has troubled me for a long time and that is the use of terms. The one that gives me the most trouble is the term "negative smear". I have heard members of our society, speak of a negative smear and have never felt I was quite sure what they meant. I think it might be a good idea to either definitely define what we mean by a negative smear or else give the term up in our discussions here and use the term "normal smear", or if any deviation from the normal were noted, state what the deviation was, so that we will have something exact.

I realize that I have given no specific suggestions. These I hope will come from you gentlemen, but I just submit these thoughts as sort of a target to be shot at and torn to pieces. It may be that I take this subject too seriously and perhaps it is not worthy of so much serious effort, but I feel, if not, we have no justification in existing as a society.

Dr. E. Granville Crabtree, Boston: I have not collaborated with the Secretary and President, yet as Dr. Cox read his suggestions I think in many ways they are worth following up. Gonorrhea, since its introduction into the Western World, seems to me to have led a rather haphazard existence. Whether the treatment has been that employed by the sailors at sea or by the best of trained men, one has only to see a traveling man moving across the continent to get some idea of the wide diversity of treatment that he is subject to. If you ask such a fellow what he thinks of the treatment of gonorrhea and he honestly tells you it would not be complimentary to the profession. I think I should welcome as fundamental a history of gonorrhea. I think it might enlighten us a great deal. I think if we have among us someone who can label for us standard terms we can use, and no others, it would be very helpful. It would be delightful to have an anatomical description of the affected parts. These are the fundamentals of our attack on the disease. I think we are fortunate in Massachusetts in having had some sociological problems worked out and the data collected as has been done by Dr. Nelson in the past few years. I should think that he had almost reached the limit of effectiveness of such studies. Yet all the time I keep feeling with Dr. Cox that the fundamental thing, uniformity of effectiveness of treatment, has probably been our weakest point. I wondered whether a return to fundamentals in treatment might not get us somewhere in treatment. Suppose we were to consider gonorrhea an infectious disease as are the cold, grippe, etc., against which we have

no specific. What do we do with a cold? Put it to bed and force fluids. What if that were applied to gonorrhea? The answer is frequently made that you could not make the patient do it. Never was there a more opportune time to try. According to Dr. Leland's report, about 39 per cent of the patients are unemployed. Suppose we turn to the simplest of treatment, atraumatic and non-chemical. Suppose when we get such a case we put him in bed and force fluids for a period of a week or ten days while he acquires a tolerance for the disease. Suppose we make provisions so that the fluids will not be dammed back and keep him in bed. Then when he returns to the clinic let us use simple cleanliness, meaning by that that we probably use salines to irrigate with and without the introduction of instruments and watch the development of that case. I don't believe it would be a hardship to that patient, because there are a number of cases whom I know about in the hands of various people who have tried that treatment. One doctor here in town has an almost perfect record and has done nothing for his cases but furnish the care of which I speak. Suppose we should take the fundamentals of ordinary acute infectious disease treatment, atraumatic and without chemicals, and use them as our yardsticks from which to measure other forms of treatment that are employed. If someone has an irrigant of a new color, let him try it out and bring it back against the fundamental yardstick. I think we might then get some basis by which we might standardize some treatment. It would be easy from that fundamental to see what would happen if you left your patient ambulatory. I would suggest that if such an experiment were introduced that it be instituted in hospital cases alone, that it be introduced into more than one hospital, and that reports be summed up together to make a yardstick.

Dr. Mintz agreed with Dr. Crabtree's suggestion that we should get back to fundamentals and that a yardstick should be provided. He emphasized the importance of non-traumatic treatment in early gonorrhea by stating that he had noted in his experience that patients who had received no treatment for a considerable time following their infection eventually responded better to treatment than those who had been treated vigorously at the beginning.

Dr. Paine also agreed with Dr. Crabtree as to the need for simplifying treatment and the importance of a yardstick, and suggested that it would be worthwhile to learn what the Army already may have produced in the way of such a yardstick. Dr. Paine feels that so far as the treatment of gonorrhea in the female is concerned it is wise to limit treatment to that which at least will do no harm even though it may not be known that it will do much good. That is why treatment of gonorrheal vulvovaginitis at the Dispensary is so radically different from treatment generally given elsewhere.

"I have often wondered if the treatment of male gonorrhea might not be a factor in the prolonged morbidity of the thing, but have never dared mention it out loud."

Dr. Paine was in agreement with the need which had been expressed for a working program and felt that it might well begin with the revision of terminology and study of anatomy. He believed that the problem of vulvovaginitis is one of the simpler ones on which a beginning might be made. Some of the problems in the treatment of gonorrhea in the female already have become more simplified.

"The general procedure in treatment of women with pelvic inflammation which is the ultimate outcome from the infection is in much better shape than it was previously. It is not very often that general surgeons operate on acute inflammations. The conservative treatment of these conditions is becoming more and more the accepted standard. So far as treatment of the infection itself is concerned, I have an idea gonorrhea in women is self-limited if it is not kept up by ill-advised treatment or is not kept active by reinfection. The cure of the disease in women is not a very difficult matter. The real problem is control of reinfection and I wonder if the men who treat male gonorrhea are paying enough attention to reinfection. To illustrate, we saw a case at the Dispensary today that has had ten or fifteen or more positive smears, which is contrary to our usual experience. She indignantly denied the possibility of reinfection during the whole period that she has been under treatment, yet we knew she had a husband in the G. U. Department who was not getting well either. Today she kicked the whole works over by telling us what has been going on. I often wonder if that is not a large part of your problem, that is the real fly in the ointment, and the reason you don't get the results that, theoretically, your treatment should secure."

Dr. Sawyer agreed with Dr. Crabtree as to the need for a yardstick and for building up the management of gonorrhea on sound basis of fundamentals. He felt that in his many years of experience at the Massachusetts General Hospital Clinic he can see an error of overtreatment rather than undertreatment. Dr. Sawyer does

not feel that a standardized treatment can be made to fit the needs of every individual.

"I think that no disease known to man or woman has been more kicked about by the medical profession than gonorrhea. I oftentimes wonder if we had taken the same attitude toward smallpox and tuberculosis and various other of these important diseases, would we be any further along with them than we are in the treatment of gonorrhea today."

Dr. Karl R. Bailey, Boston: Speaking from a laboratory standpoint, I think you gentlemen will admit that for every man who has specialized in the treatment of gonorrhea there are at least twenty men in general practice who treat the disease routinely. Especially in these days they don't care to turn a patient away from the office.

Dr. Bailey spoke of the amusing interpretations of laboratory reports which are heard in the testimony of physicians in court cases. He submitted for the consideration and if possible the approval of the Society a statement of smear interpretations which he proposes to send out with each report on smear examinations at the Boston City Laboratory. He suggested that it might be possible, through the State Department of Health, to attain uniformity in reporting and smear interpretation in all the public health laboratories in the State. In this way a great many physicians might be taught to give proper value to laboratory reports.

"I think if we could hit upon some standard method of interpretation of laboratory diagnoses we will have gone quite a long ways in eliminating some of the causes of the spread of the disease because I feel the general practitioner (in fact, I know this is true) receives one or two negative reports and he immediately tells that case he is perfectly all right. I know in years gone by we have picked up some of our health department reports in the hands of prostitutes."

Dr. Leland believed that a history of gonorrhea if it included in some detail a history of therapy would make a lot of repetition unnecessary and would probably bring to light the Army procedures already mentioned. He suggested that treatment of gonorrhea be studied from three different points of view, that in the male, the female and as a special part of the latter gonorrheal vulvovaginitis. He is of the opinion that committees should be appointed to make such studies. He also pointed out that diagnosis from the laboratory as well as the clinical point of view constitutes an important study in itself and urged physicians who treat gonorrhea to be their own laboratory technicians.

"In the consideration of treatment we should try to correlate and organize our thoughts, possibly divided into headings of General Hygiene, Sex Hygiene, Internal Medicine, Local Medication, and so on down the line. One thing that is very important and that is the social problem already referred to by Dr. Paine. In our experience it has been one of the most important features in the treatment of the case—the patient's personal conduct at home, and possibly afield. I think all these problems should be studied under separate headings and then correlated in a general discussion of treatment."

Dr. Channing S. Swan, Boston: Thank you for the opportunity of speaking. I wish to say that I agree absolutely with what Dr. Crabtree has said about getting back to fundamentals and the conservative basic idea in the treatment of the disease. I have made it a practice for a long time to tell every new acute case of gonorrhea that comes to me that he should not look to me to cure the disease but should look to himself—that the treatment and the cure depend on him and that my duty is to see him from time to time and to change such treatments as I desire to institute as changes in his condition arise. I always start out in a conservative manner, urging the patient to do exactly what Dr. Crabtree has stated he feels would be ideal, and like him I find very few patients who think they can do it. However, I think that is the fundamental idea to start from. I must say I was quite surprised when Dr. Keyes was here and talked to us, although his ideas may not be quite so conservative as those expressed by Dr. Crabtree they appeared to be more conservative than those of many in the Society, because in the discussion that followed his remarks it seemed to me that 90 per cent thoroughly disagreed with his method of treatment. Most of the speakers advocated rather vigorous therapy compared with the conservative method with which I agree and think is very advantageous. What Dr. Bailey says about the treatment of gonorrhea by general practitioners leads me to suggest that somehow the Board of Registration in Medicine with this Society or the Urological Society or some similar group might determine who shall and who shall not treat gonorrhea.

Dr. L. M. Felton's remarks were directed against prescribed rules for the management of gonorrhea. He expressed himself as believing that many patients were kept under treatment much longer than is necessary because of such rules and regulations. Specifically, he objected to certain rules of conduct of clinics as pre-

scribed by the Department of Public Health which he felt resulted in the treatment of patients far beyond that which is actually necessary.

DR. O. R. T. L'ESPERANCE reviewed the management of gonorrhea as he has observed it over the twenty-five or thirty years of his experience, pointing out that, at the beginning, the treatment of this disease was left to the nurse or the house officer or to nobody, if they were not interested in it. He felt that even today in spite of large, well-organized clinics, there is too little interest on the part of the medical men in charge and still too much relegation of the actual treatment to nurses and house officers. He urged more specific interest on the part of the clinic chiefs and more direct contact between patient and physician. He felt that the management of gonorrhea is simplified directly in proportion to the interest which the physician himself takes in the individual patient, not only in the matter of treatment but in the matter of the whole conduct of the patient. He felt that since it is practically impossible to refer patients advisedly to men competent to treat gonorrhea, since so few men are competent, our efforts should be directed toward the education of the whole medical profession in the proper management of this disease. He warned the Society that unless the medical profession as a whole considered the management of gonorrhea more seriously the State would be obliged to undertake the task and would probably do a good job at it, since it would have full-time men and clinics open at hours convenient to the patient. Dr. L'Esperance also complained that many of the better urologists who through past experience are best qualified to treat gonorrhea referred patients in this class to less experienced second and third assistants, and paid little attention themselves to their care.

DR. P. N. PAPAS pointed out that there seem to be at least 60 different strains of the gonococcus and the reaction of different individuals to different or to the same strains may be entirely different. A patient, such as an ice man, doing heavy work may quickly recover from his infection without complications even though he remains at work, while a patient sent to bed may develop all the complications. He believes that we are not taking advantage of many of the things we observe and that research alone will bring to light the solution of our theoretical problems. For instance, why does a case which has had the severe complication of a prostatic abscess sometimes clear up immediately following the drainage of the abscess? Why does a patient with pneumonia sometimes recover from his gonorrhea without treatment for the latter infection? Is there anything in fever therapy? Why is it that in some series of cases conservative treatment does not produce equally good results with more vigorous treatment, and vice versa? We must have funds for research and with the better information of the public concerning gonorrhea such funds should become more readily available. Dr. Pappas also agreed that there should be some standardization of certain procedures. When should treatment for posterior urethritis be begun? When and how should prostatic massage be given? What sort of machinery can be set up through which it might be determined that gonorrhea treated by those who are not expert is cured? What is the significance of the same amount of pus in the prostatic secretion during various stages of the disease?

DR. N. A. NELSON emphasized the point made by Dr. Paine as to the importance of controlling the patient's conduct since control of gonorrhea, like the control of the common cold, depends upon reducing the number of contacts. During the long period required for cure, treatment alone is not sufficient. Management of the disease which does not include control of conduct will accomplish little toward the control of this infection. From the point of view of the health department the more effective treatment of vulvovaginitis will result in preventing the present long-time exclusion of these children from the public schools. There is also the problem of diagnosing female gonorrhea. Male syphilis is reported as compared to female syphilis in the ratio of about 1.4 to 1, while the ratio of male to female gonorrhea has been from 5 to 1, to 7 to 1, over the years in Massachusetts. This is rather conclusive evidence that gonorrhea in the female is not diagnosed. If the disease is not discovered, how can it be treated or controlled?

DR. BIGELOW concluded the remarks of the evening by pointing out that it was exceedingly difficult to classify competency because it was so difficult in the first place to determine what is meant by competency. He also pointed out that even though a list of those competent could be prepared it would probably result only in the discov-

ery that they were concentrated in the larger communities where they are now known to be available and that the smaller communities and rural areas would still be as inadequately cared for as they are known to be at present. Dr. Bigelow felt that a suggestion made at a previous meeting that the public health laboratory discontinue examination of smears for the gonococcus, owing to the fact that they are usually misinterpreted, was a good one. However, since it appears that only a small proportion of physicians who treat gonorrhea own microscopes it was felt that some laboratory service is better than none. If we must continue to examine smears there is no doubt that some sort of interpretation of their meaning would be most worthwhile. He felt that the consciousness of confusion in the management of gonorrhea was much more likely to bring clarification than the previous smug satisfaction that each individual practitioner might have in his own particular method of treatment.

EPIDEMIC PLEURODYNIA*

BY N. L. CRONE, M.D.,† AND E. M. CHAPMAN, M.D.†

THE observation of 30 cases of an unusual syndrome characterized by the sudden onset in young people of a high fever and severe pain in the lower chest or abdomen suggests that the "Devil's Grip" described in 1888 by Dabney[1] in Virginia has made its appearance in Massachusetts in 1933. It is our purpose to call attention to the characteristics of this syndrome as it is now seen in this region so that we may be on the alert to study these cases and if possible to determine the etiologic factor and mode of transmission which are at present unknown. Small[4] has described a plasmodium which he believes to be the causative agent, but confirmatory evidence of this is lacking. A similar epidemic disease occurred in the Middle Atlantic States in the summers of 1923 and 1924 and was termed epidemic pleurodynia by Torrey[2] and Hangar, McCoy and Frantz[3]. We do not believe this to be the manifestation of influenza described by Reilly[5] in 1921. The name "epidemic pleurodynia" is unsuitable since in our experience many serous surfaces may be the seat of the pain.

The clinical manifestations as described in this report are in general in accord with those previously described by the authors referred to above; we believe that abdominal pain has been a more prominent symptom in the present epidemic.

The histories obtained from the patients are remarkable in their similarity, the following being an example:

E. W. 7462, a 12 year old previously healthy American born school girl was awakened at 8:00 A. M. by pain in the right lower quadrant of the abdomen that was severe enough to make her cry out. This pain was worse on deep inspiration. She felt feverish but the temperature was not taken. Her appetite was only fair and she had mild headache. There were no other symptoms. She remained in bed and was cared for by her mother until the following morning when she was allowed to get up as she felt quite well. On the third day while about the house she suddenly developed pain in the right upper quadrant that soon extended into the right chest. The pain was similar in character to the first attack. She was seen by a physician who found that she had a fever and referred her to the hospital as a possible case of acute appendicitis.

On entry her complaint was constant, excruciating pain in the right chest and upper abdomen. She had a slight headache and no appetite. Her temperature was 103.2 by mouth, pulse 110, and respirations 28. Physical examination showed a well developed and well-nourished girl with flushed cheeks lying in bed with the knees drawn up. The respirations were shallow and she winced with pain. She would not breathe deeply and was loath to move about. Splinting the lower chest with the hands lessened the pain markedly and she then breathed easily. There was definite spasm over the right side of the abdomen, greater in the right upper quadrant. There was considerable tenderness over this region and along the right costal margin.

She was given aspirin for pain and in the next twelve hours her temperature returned to normal and she became symptom-free and remained so for 48 hours until discharged from the hospital.

At entry her white blood count was 9,000 per c.mm. with a stained smear which showed 85 per cent polymorphonuclear leucocytes, 12 per cent lymphocytes and 3 per cent monocytes. The red blood cells were normal as were the platelets, and no inclusion bodies or plasmodia were seen. Urine examination was entirely normal. Fluoroscopic examination and roentgenograms of the chest showed no pathological changes; both diaphragms moved well. The day after entry her white blood count was 8,700 per c.mm. and the differential count was essentially as above.

Between August first and twenty-fifth there have been 30 cases of this summer malady seen in the Massachusetts General Hospital. The patients have come from scattered areas in and around Boston. The age incidence ranged from two to 43 years; most of the group were between the ages of ten and 25 years, only three being younger and three older than these ages. The sexes have been equally affected. In a few instances other members of the family afflicted have remained at home without consulting a physician. Although the etiology and incuba-

*From the Medical Services of the Massachusetts General Hospital.

At the same time similar cases have been observed at the Boston City and Peter Bent Brigham Hospitals. Case reports from the latter by Drs. A. B. Richter and H. D. Levine are in press.

†Crone—Former House Officer, Massachusetts General Hospital. Chapman—Resident Physician, Massachusetts General Hospital. For records and addresses of authors see "This Week's Issue," page 1027.

tion period are unknown, it is of interest that in one family an interval of two weeks elapsed between the appearance of symptoms in a brother and sister. The onset is usually sudden without previous cold, malaise or other symptoms.

Pain is the outstanding feature and this is usually over the lower chest, precordium or abdomen, more often on the right side, sometimes on the left and occasionally bilateral. The abdominal pain has usually been in the right upper quadrant but has been present in all regions of the abdomen. It may migrate from one region to another and then become localized at one point. In a few cases the whole upper abdomen was affected. In three there was pain in the right shoulder as well as in the right upper quadrant of the abdomen. The pain is a severe aching that becomes lancinating on deep inspiration, coughing or sudden motion of the trunk. Not a few have walked in holding the affected side and bending forward, while others have been seen to double up in bed with the aggravation of the pain. Headaches in the occipital and frontal regions frequently accompanied the pain and fever and in two instances there was slight stiffness of the neck. One patient, a girl of 14, complained of transient but severe pains in the knees on the sixth day of her illness.

When first seen the average temperature was 102 to 103 degrees by mouth. In those cases with a single episode this returned to normal within twelve hours, but in those with recurrent attacks the chart was irregular with subsequent peaks at 24 and 48 hour intervals. Recurrence even after five days was noted in one case. There was a moderate tachycardia (96 to 120) and the respirations were usually shallow and rapid.

Physical examinations showed a flushed face, and several patients had scattered, discrete, maculopapular, pinkish lesions of the skin that were said to be mosquito bites. The pharynx was normal. Examination of the chest often showed tenderness over the diaphragmatic insertions along the costal margins. Abnormal signs in the chest were found in two instances only, in one a loud pleural friction rub appeared after the third bout of fever and in the other a transient rub was heard in the right axilla. In several of the younger patients exquisite tenderness over the abdomen and spasm of the rectus muscles either localized or involving the whole abdomen was a confusing finding.

Laboratory examinations showed a normal urine in each; the white blood count was normal in all but three cases. One patient had a count of 12,900 per c.mm., another 14,000 and a third 16,000. In each of these three there was a slight increase in the polymorphonuclear cells. The third patient in a recurrent attack had a leucopenia of 3,000 to 6,000 cells with an eosinophilia of six per cent. Although Small[4] has noted an eosinophilia during the convalescence we have not found this in 12 patients examined in the second and third week after the onset. The appearance of the red blood cells and platelets was normal and no spirochetes or plasmodia[4] were seen. Intravenous injection into a volunteer of 10 cc. of whole blood from one patient on the fourth day of the illness did not cause any manifest disease.

Fluoroscopic examination and roentgenograms of the chest in 15 cases showed no evidence of disease and the diaphragms moved equally well. Blood cultures, Hinton reaction and the Widal and heterophile antibody agglutinations during the febrile period in six cases gave normal results.

The diagnosis was most often made on the history of sudden onset of high fever and severe abdominal or chest pain in a young person in whom there were no real symptoms relative to the cardio-respiratory, gastro-intestinal or genito-urinary systems. The greatest difficulty lay in deciding that the patient did not have an acute abdominal disease of surgical nature. Two exploratory laparotomies were done with the preoperative diagnosis of acute appendicitis, but a normal appendix was removed in each. In a third patient a perforated duodenal ulcer was suspected, but exploration showed a normal abdomen. A dry pleurisy appeared later in two patients although repeated examinations failed to reveal any pleuritis in the other cases. Preparalytic poliomyelitis was twice suspected. Both of these patients had abdominal pain, fever, headache and slight stiffness of the neck. The reflexes and cerebrospinal fluid findings were normal in both cases. Angina pectoris, pericarditis, ureteral and gall bladder calculi were each considered in as many cases.

The indications for treatment are clearly the isolation of the patient, the relief of pain, and the assurance that the outcome in the past has always been complete recovery. Recurrences may be expected, in some cases as long as ten days after the initial symptoms.

To sum up, we wish to call attention to the unexplained presence of an unusual syndrome, characterized by the sudden onset in young people of high fever and severe pain in the chest or abdomen without other symptoms and with few signs, which subsides rapidly and from which recovery is complete.

We have been aided by the counsel and encouragement of Dr. William B. Robbins.

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3 Hangar, F. M. Jr.; McCoy, C. C., and Frantz, A. M.: An epidemic of mild fever of unknown nature. J. A. M. A. 81: 826, 1923.

4 Small, James C.: A protozoan organism within the erythrocytes of patients suffering from epidemic pneumonia ("Devil's Grip"). Am. J. Med. Sci. 168: 570, 1924.

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VERMONT STATE MEDICAL SOCIETY

HOUSE OF DELEGATES

THE fixed session of the House of Delegates of the Vermont State Medical Society was called to order by the President, Dr. Seth Martin, at 5 o'clock, Thursday afternoon, October 5, 1933, at the Armory, Barre, Vt.

The roll was called and vacancies in the delegations filled, making the roll as follows:

Addison County:
H. L. Williamson, Bristol.

Bennington County:
J. C. Armstrong, North Bennington.
F. J. Hurley, Bennington.

Chittenden County:
C. H. Beecher, Burlington.
R. E. Corley, Burlington.
Arthur Hogan, Burlington.
C. J. Johnson, Burlington.
A. L. Larner, Burlington.
P. P. Lawlor, Burlington.
K. C. McMahon, Burlington.
C. A. Ravey, Burlington.

Franklin County:
C. G. Abell, Enosburg Falls.
E. A. Hyatt, St. Albans.
R. M. Pelton, Richford.
C. U. Johnson, West Berkshire.

Lamoille County:
W. M. Johnstone, Morrisville.

Northeastern County:
Not represented.

Rutland County:
A. H. Bellerose, Rutland.
M. D. Carey, Ludlow.
B. F. Cook, Rutland.
Naomi Lanou, Rutland.
E. J. Quinn, Castleton.
R. H. Seeley, Rutland.

Washington County:
W. W. Angell, Randolph.
R. E. Avery, Barre.
R. H. Bisson, Montpelier.
L. W. Burbank, Cabot.
William M. McFarland, Barre.
J. A. Wark, Barre.

Windham County:
J. A. Stevenson, Chester.
Philip H. Wheeler, Brattleboro.

Windsor County:
A. L. Patch, Windsor.
William H. Krouse, Windsor.

The report of the Secretary of the House of Delegates, E. J. Quinn, was called for, but inasmuch as the 1932 meeting was mostly routine business, the reading of this report in full was dispensed with, and the report accepted as printed.

The reports of committees, also being printed, were accepted as printed, without being read.

No unfinished business was presented.

Under New Business, Dr. William G. Ricker, Secretary of the Vermont State Medical Society, stated he was not a member of the House of Delegates, but asked, and received, the privilege of the floor.

Dr. Ricker stated that it is customary for many other state medical societies to hold a public meeting, and recommended

(1) That the Vermont State Medical Society put on a public meeting the Wednesday evening before the regular annual meeting of the State Medical Society, in an effort to place the medical profession before the general public. He thought it would cost the Society about $100 to do this, and added that Dr. Haggard or Dr. Bigelow would probably be available as speakers.

(2) That the Vermont State Medical Society, in conjunction with the University of Vermont, hold a mid-winter Postgraduate meeting, probably in February, for a day and a half or two days, the University to prepare the program, and Dr. Ricker's office be responsible for the printing and mailing of the program; the expense to the Society not to exceed $100.

(3) The matter of Postgraduate study in the county medical societies to enable general practitioners to keep up-to-date.

These three recommendations were discussed at length.

Dr. J. A. Stevenson moved that the Society ask the University of Vermont to hold such a meeting in February, 1934. Motion seconded by Dr. Cook.

Dr. Hyatt offered an amendment, that the Society Secretary conduct the negotiations with the University, with the assistance of the Society Council, and that it be a state society meeting.

Dr. Ricker recommended that a program be prepared, similar to the one for the regular State Society meeting, giving the University the entire credit, his office to do the work of mailing, looking after printing, etc., at an expense to the Society not to exceed $100.

Dr. Stevenson withdrew his motion, and Dr. Cook withdrew his seconding of the motion.

Dr. Stevenson then moved that the Society Secretary and Council be authorized to arrange a mid-winter meeting in conjunction with the University of Vermont, at an expense to the Society not exceeding $100. Motion seconded by Dr. Cook.

An amendment was offered that the time of

holding such meeting be left to the discretion of those arranging for it.

This amendment was accepted by Dr. Stevenson, and the motion, as amended, was seconded by Dr. Cook.

The motion, as amended, was put to the House of Delegates, and the President declared the motion, as amended, carried.

The matter of a public meeting the night before the regular annual meeting of the Society, was discussed and Dr. Johnstone moved that the Society Secretary arrange for such a meeting, at an expense to the Society not to exceed $100. Motion seconded by Dr. Hyatt.

The motion was put to the House, and the President declared it a vote in the affirmative.

Dr. Ricker read paragraph 5, of Article II of the Constitution, namely,

> "No member of the House of Delegates shall be eligible to the offices in this Society as President, Vice-President, Secretary, Treasurer or Auditor."

and suggested that this paragraph 5 be either repealed or lived up to.

Dr. Hyatt moved that this paragraph be repealed. Motion seconded by Dr. Patch.

Following discussion the President put the motion to the House, and announced that the motion was lost.

The next business taken up was the place of the 1934 annual meeting.

Dr. J. A. Stevenson extended an invitation on behalf of Brattleboro.

Dr. Bellerose moved that the 1934 annual meeting be held in Burlington. Motion seconded by Dr. Johnson, and carried.

Dr. Beecher expressed his belief that papers delivered before the Society and the program for the current year's meeting should be printed in the *New England Journal of Medicine* more promptly than at present.

Dr. Quinn offered the following resolution:—

That it is the opinion and wish of the House of Delegates that it be called to the attention of the Publication Committee of the Vermont State Medical Society, the fact that the Society has not had a program of the present meeting printed in the *Journal*, and that we desire to have papers, etc., printed in advance of the time they were printed this year.

Dr. Johnstone moved the adoption of this resolution. Motion seconded; the motion to adopt was placed before the House of Delegates, and the President announced the resolution adopted as presented.

Dr. Quinn brought up the matter of asking the University of Vermont to reduce the number of incoming men in the Medical College.

After discussion Dr. Quinn offered the following resolution:—

That our committee on Medical Education meet and discuss this matter with the Dean of the Medical College and University administration, as to their future policy.

Dr. Johnstone moved the adoption of this resolution, and after discussion, the motion to adopt was placed before the House of Delegates, and the President announced the resolution adopted as presented.

Dr. Hyatt asked for more coöperation with the Medico-Legal Committee, especially when members receive threat of a suit, that they immediately notify the secretary of the Medico-Legal Committee instead of trying to settle these suits themselves.

Election of Officers being the next business, the Chair announced he would receive nominations for President of the Society for the coming year.

Dr. Stevenson nominated Dr. J. H. Blodgett, of Bellows Falls, which nomination was seconded.

Dr. Beecher nominated Dr. J. H. Woodruff, of Barre, which nomination was seconded.

The President appointed as tellers Doctors Quinn, Hogan and Larner, and announced the result of the ballots cast as follows:

Total ballots cast	32
Dr. J. H. Woodruff	23
Dr. J. H. Blodgett	9

The President announced Dr. J. H. Woodruff as president for the ensuing year.

Dr. Beecher moved that the Chair appoint a nominating committee of three, not including himself, to bring in nominations for the remaining officers and committees, at an adjourned meeting of the House to be held at 8:45 Friday morning, October 6, 1933.

Motion seconded and carried.

The Chair appointed as such nominating committee Doctors Hyatt, Chairman, Johnstone and Stevenson.

On motion, seconded and carried, the meeting adjourned until 8:45 Friday morning, October 6, 1933.

Friday Morning

The adjourned meeting of the House of Delegates of Thursday afternoon, October 5, 1933, to Friday morning, October 6, 1933, at the Armory, was called to order by the President, Dr. Seth Martin, at 8:45.

The matter of having papers and the Society program printed in the *New England Journal* more promptly than has been the case during the current year, was further discussed.

Dr. Ricker asked, and received the privilege of the floor, and explained the present method of handling the publication of papers, and that it was very difficult to get a completed program for the annual meeting, until very close to the time of such meeting, and added he would see

the Editor of the *Journal* and determine what, if anything, could be done about this matter.

Dr. Beecher suggested that the Society Constitution be amended so as to dispense with the Necrology Committee, but no action was taken on this matter.

Dr. Ricker expressed it as his opinion that new business coming before the House of Delegates, should be presented at the Thursday afternoon fixed session, but that it can lie over until later for further vote.

Dr. Hyatt moved that the third paragraph of the By-Laws and Regulations of the House of Delegates, be amended to read *1 p.m.*, instead of "5 p.m."

This motion was seconded, and upon being put to a vote the President declared the motion carried.

Dr. Hyatt, as Chairman of the Nominating Committee, submitted the following report:

President: J. H. Woodruff, Barre.
Vice President: George G. Marshall, Rutland.
Secretary: William G. Ricker, St. Johnsbury.
Treasurer: David Marvin, Essex Junction.
Auditor: E. H. Buttles, Burlington.

Councillors:
1st District: Edwin A. Hyatt, St. Albans.
3rd District: F. E. Farmer, St. Johnsbury.

Executive Committee:
Clarence H. Beecher, Burlington.
William G. Ricker, St. Johnsbury.
Charles Buchanan, Bennington.

Publication Committee:
William G. Ricker, St. Johnsbury.
Charles F. Dalton, Burlington.
E. A. Stanley, Waterbury.

Legislative Committee:
John H. Blodgett, Bellows Falls.
Seth Martin, Burlington.
J. E. O'Brien, Rutland.

Medical Education Committee:
J. H. Woodruff, Barre.
A. C. Black, Brattleboro.
S. W. Hammond, Rutland.

Necrology Committee:
B. D. Adams, Burlington.
G. G. Marshall, Rutland.
H. L. Pierce, Swanton.

Medico-Legal Committee:
F. E. Farmer (for 3 years), St. Johnsbury.

Health and Public Instruction:
E. H. Buttles, Burlington.
B. F. Cook, Rutland.
Paul K. French, Burlington.
A. B. Woodman, Springfield.
Stewart Ross, Rutland.

Delegates to State Societies:
Maine Medical Association, A. C. Walker, Springfield.
New Hampshire Medical Society, John A. Stevenson.
Massachusetts Medical Society, Geo. R. Anderson, Brattleboro.
Connecticut State Medical Society, J. D. Lane, Bennington.
Rhode Island Medical Society, A. M. Cram, Bridgewater.
Medical Society of the State of New York, A. B. Soule, Burlington.
American Medical Association, William G. Ricker, St. Johnsbury.
American Medical Association (alternate), Paul K. French, Burlington.

Anniversary Chairman:
C. H. Beecher, Burlington.

Members of New England Medical Council:
John H. Woodruff, Barre.
George G. Marshall, Rutland.
William G. Ricker, St. Johnsbury.
John A. Stevenson, Chester.
Edwin A. Hyatt, St. Albans.

Officers of the House of Delegates:
President: C. G. Abell, Enosburg Falls.
1st Vice President: B. D. Adams, Burlington.
2nd Vice President: W. W. Angell, Randolph.
Secretary: E. J. Quinn, Castleton.

Dr. Cook moved that the report of the Nominating Committee be accepted as presented. Motion seconded by Dr. J. A. Stevenson.

The President put the motion to the House of Delegates, and announced the motion as carried, and declared the nominees duly elected to the respective offices and committees for which they were nominated.

Dr. Beecher moved that the meeting adjourn. Motion seconded, and so voted.

Adjournment.

PRESIDENT'S ADDRESS*

Head Injuries

BY LYMAN ALLEN, M.D.,† BURLINGTON, VT.

IN these days of numerous automobile accidents, head injuries have become of increasing interest to doctors everywhere. There are certain symptoms, pointing fairly definitely to brain injury, which are capable of being detected by any physician who looks carefully for them, and their interpretation in most cases is comparatively easy. Let us remember that we are interested in the amount of brain injury, and that the presence or absence of fracture of the skull is of importance largely from the amount of present or future injury to the brain which it may cause. In other words, we are not interested in the fracture as a fracture, and the sooner we stop thinking of head injuries as fractures, the better for our patients.

The skull is a box with unyielding sides, which exactly fits its contents. Anything that makes

*Presented at the Annual Meeting of the Vermont State Medical Society at Barre, October, 1933.

†Allen—Professor of Surgery, University of Vermont. For record and address of author see "This Week's Issue," page 1027.

the brain box smaller or its contents larger must cause increased pressure upon the brain itself. And this increased intracranial pressure causes injury to the brain and likewise produces many of the symptoms from which we are able to make our diagnosis.

Obviously compound fracture of the skull opens the door to infection and thus demands operation, but frequently extensive injury to the bones of the skull by allowing the escape of extravasated blood or cerebrospinal fluid is a life-saving condition, if infection can be prevented.

Again, we must remember that certain areas in the brain, when injured or stimulated, cause special localizing symptoms, and that other areas are silent, and their injury, therefore, does not cause symptoms which we can recognize. When present, localizing symptoms are a great help in diagnosis, but the absence of any or all such symptoms, does not mean, necessarily, that there is no cerebral injury.

We have, thus, these two classes of symptoms, the first, general symptoms caused by increased intracranial pressure, and the second, perhaps, localizing symptoms. The specific things which may happen within the skull are numerous. One is hemorrhage, extra- or subdural, which will compress the brain because the extravasated blood takes up room in the brain box and therefore compresses the brain. A depressed fracture likewise lessens the size of the brain box and thus causes compression and if, as frequently happens, there is intracranial hemorrhage in connection with the depressed fracture, this will still further compress the brain by taking up available space in the brain box. But without either intracranial hemorrhage or depressed fracture the brain may be so injured and bruised that swelling and edema occur which interfere with the circulation within the skull and add to its contents and thus increase intracranial pressure.

In fact, in most head injuries, unless trauma has been sufficient to extensively injure the brain, or unless some vital center has been affected, the condition that causes death is increased intracranial pressure which interferes with the necessary circulation through the brain; and all of this may occur without any localizing symptoms whatever.

Following a head injury, there are three stages through which a patient usually passes, the first, the stage of shock; the second, the stage of cerebral stimulation; and the third, the stage of cerebral exhaustion. The stage of shock is exactly like the shock following any injury. It is usually brief and we may not see the patient until this stage has passed. In the stage of cerebral stimulation we have headache, flushing of the face, vomiting, extreme restlessness and high blood pressure, a pulse that is slow, regular and strong. The pupils may be dilated or contracted, regular or irregular, but they usually react to light. Respiration may be deep or superficial, regular or irregular, but not stertorous. The patient can usually be roused, rarely there is complete unconsciousness. The most suggestive of these symptoms are the slow pulse and the high pressure. Choked disc is later in its appearance. A slowly rising pulse with a slowly falling pressure is a favorable sign and the opposite is unfavorable. Also a rectal temperature over 102-1/2° gives a bad prognosis. In the stage of cerebral exhaustion the pulse rapidly increases in rate up to 120 or more and the pressure rapidly falls. Unconsciousness deepens, the respiration becomes stertorous and Cheyne-Stokes. When the pulse rate becomes higher than the systolic pressure, the prognosis is most grave and it is probably too late then to do anything for the patient.

In all head injuries it is important to judge, first, whether there has been any real brain injury; secondly, whether the condition is progressing toward recovery or the opposite; thirdly, how we can assist in the cure. No symptom or set of symptoms prove brain injury. It is the permanence of the symptoms that proves it; and the time to operate, if we operate at all, is during the stage of cerebral stimulation, for then the patient has reacted from the shock of the accident, and his brain has not been further injured by prolonged increase in intracranial pressure, which interferes with venous return, causing increasing edema and perhaps preventing the circulation of the cerebrospinal fluid. In some ways the condition may be compared with that found in a hernial sac, when strangulation has occurred—if operation is delayed gangrene of gut or omentum occurs from pressure at the neck of the sac, and while in strangulated hernia we may still save life by even a late operation, by resecting the gut, etc., in the over compressed brain this late harm is apt to be fatal.

In the relief of increased intracranial pressure it is obvious that we must either lessen the contents of the brain box or else increase its capacity. The former may be done by dehydrating medicines, lumbar or cisternal puncture, or trephine with drainage, and the latter can be secured by some decompressing operation.

Which of these various methods we use depends somewhat upon the condition existing and our own experience and results in previous cases, and sometimes the character of the injury determines our treatment. For example—if a compound fracture exists we must trephine if we are to prevent possible infection, and this trephine also provides some drainage of the brain box and slightly increases its capacity. If there is no fracture, either simple or compound, we may secure good results by either (or both) dehydration and lumbar puncture, although lumbar puncture, when extradural

hemorrhage is present, is not without danger. The application of ice to the elevated head, with heat to the feet and the avoidance of all stimulants and mental or physical activity is of some slight service in securing the same result but should be combined without other measures of treatment.

The patient with extensive brain injury who passes quickly from the stage of shock to that of cerebral exhaustion is beyond our aid from the moment of the injury. The one who has a slight jar of the brain (slight concussion) will recover if let alone, but the cases between these two extremes are the ones whose recovery depends upon the intelligent treatment given them. Watch them carefully through the stage of shock into that of cerebral stimulation. If they do not recover from the shock of the accident they certainly could not survive the added shock of operation.

In the stage of cerebral stimulation take the pulse and blood pressure every half hour at least. If these slowly approach normal all is going well, but if the pressure moves higher and the pulse becomes slower, or if the rectal temperature rises above 102½, you must do something—lumbar puncture, dehydration or trephine. If the condition of the patient and his pulse and pressure remain unchanged, then lumbar puncture as a diagnostic as well as a therapeutic measure is indicated. Draining off the cerebrospinal fluid relieves the intracranial pressure at least temporarily and if done slowly has little, although some risk. Repeated lumbar puncture has saved many lives, but if there is extradural hemorrhage, e.g., from the midmeningeal artery, it is possible that the relief of intracranial pressure by lumbar puncture may allow further extradural hemorrhage, a larger blood clot which takes up more space in the brain box and for which there is no relief except by trephine, removal of the clot and stopping the bleeding, or at least affording it free exit from the skull. For the patient does not die from loss of blood, as a rule, but from increased pressure on the brain. The typical case of hemorrhage from the midmeningeal artery recovers from the shock of the accident, improves for a few hours or even days, and then slowly relapses into mental uncertainty or unconsciousness. Such a history clearly indicates continuing hemorrhage and demands trephining, rather than dehydration or lumbar puncture. If there are localizing symptoms, such as spasm or paralysis of an arm, leg or side of the face, that is helpful in directing you where to trephine, but lacking all localizing symptoms, you should trephine at the point where the injury has been greatest, and lacking that knowledge, trephine in the region of the midmeningeal artery, on both sides if necessary, to find the clot and stop the bleeding, or to provide for drainage.

To illustrate some of these conditions I will report briefly five cases:

An example of the late effect of a severe cerebral contusion without skull fracture.

On June 26, 1933, L. S. was hit directly in the face by a large rock which he was lifting on to a truck. He entered the hospital comatose, with a broken nose, blood pressure 170/90, pulse 90 and regular. His pressure soon dropped averaging between 130 and 152; his pulse remained between 84 and 88. He improved and was up and around the ward until July 7 (eleven days) when at 9:30 P.M. he suddenly became unconscious with Cheyne-Stokes breathing, pressure of 238/130, and pulse about 122. His pressure and pulse varied for the next 24 hours and he developed occasional spasmodic movements of both forearms, which later became flaccid. Lumbar puncture on July 8 removed three drams of fluid under pressure of 11½ mm. of mercury. The next day he was still unconscious and lumbar puncture drew out four drams of bloody fluid under pressure. The blood pressure continued high and his pulse 120 to 140. On July 10, pulse and pressure were still elevated, lumbar puncture brought 5½ drams of bloody fluid under pressure. He died on July 11. The autopsy showed no fracture of the skull but contusion of the right frontal lobe, with softening and hemorrhage into the frontal lobe and right ventricle, and no infection.

An example of a very severe injury requiring trephine on both sides, with recovery.

On February 28, 1932, S. B. fell off a railroad bridge 25 feet, striking his head on the rocks. He was brought into the hospital in coma, blood pressure 105/70, pulse 80 and strong, no sign of paralysis, scalp wound about 8" long led to a fracture of the skull with no evidence of depression. The wound was temporarily cleaned and closed and 12 hours later the blood pressure was 78/52 and the patient had regained consciousness. There was loss of motor power of the left arm and forearm, some interference with speech, and diminished knee jerks. At operation an incision was made from ear to ear over vertex. After trephining on the left the dura did not pulsate. A large extradural clot was found and removed and still the dura did not pulsate. It was opened letting out some subdural blood. The brain appeared rather edematous and dark. He was then trephined on the right side. There was no extradural clot, but the dura did not pulsate. It was opened, the brain was dark and edematous. Some fluid oozed from beneath the dura. The color of the brain improved somewhat and the brain now pulsated moderately. The wound was closed with cigarette drains down to the skull on each side (extradural). X-ray of cervical spine showed compressed fracture of the bodies and articular processes of the fifth and sixth cervical vertebrae, also of the spinous process of the sixth cervical vertebra with no displacement. The patient made an uninterrupted convalescence. He left the hospital March 17 against advice. Speech had improved considerably, but there was still marked weakness of the muscles of arm and forearm. He afterward went to the Naval Hospital at Chelsea.

A case of simple depressed fracture which made rapid and complete recovery after trephining. (This patient might have recovered without operation, but there would have been the chance of epilepsy later.)

On June 11, 1933, R. W., nine years old, was struck over the right temple with a baseball bat. He was unconscious at first but roused before being brought to the hospital. He had a depressed fracture, circu-

lar in form, 2" in diameter in the right parietal bone, not compound. His pulse was 88, his temperature subnormal. He was trephined, the depressed bone removed, and the skin closed with drainage. He recovered without symptoms and went home in two weeks.

A case of probable fracture of the base of the skull with typical symptoms of intracranial hemorrhage:

On February 12, 1933, the day previous to admission, H. R. struck his head on the bleachers when playing basketball. He was dazed for a few minutes, but resumed play and walked home. Later he complained of headache over the left eye, and vomited. He slept well all night but the next morning was dozy, sleepy, would not talk, and somnolence was increased. He was semiconscious on admission two hours later, blood pressure 142/78, pulse 64. His pressure remained about the same and his pulse dropped to 50. Lumbar puncture showed colorless fluid under pressure of 11 mm. mercury which rose to 16 mm. when the left jugular was compressed, and to 14 mm. when the right jugular was compressed. He improved following this puncture. The next morning he was irritable and a swelling of the left side of the neck extending from the tip of the mastoid downward beneath the sternomastoid was noticed. He lost his right knee jerk entirely and the left nearly. The grip of the right hand was very weak, practically negligible. Diagnosis was made of extradural hemorrhage and he was trephined about over the speech center. The dura was tense and did not pulsate. Dura was opened, finding a small vein on the cortex which was bleeding. This was controlled by pressure. The trephine opening was enlarged backward and a considerable amount of black blood welled up from the lower end of the incision, apparently from the base of the skull; no fracture of outer or inner table was detected. The cortex near the tip of the temporosphenoidal lobe was dark and congested, as if contused; there was a slight laceration of the cortex just posterior to this. The brain commenced pulsating after the fluid blood had welled up from the base. A cellosilk drain was placed extradurally at the lower angle of the wound and the scalp wound closed partially. There was practically no disturbance from the operation. The boy had an uninterrupted convalescence and went home March 4, feeling well, all symptoms improved.

Mr. R., September 15, 1933 (in auto accident), entered the hospital complaining of nothing more than headache and a severe abrasion above the right ear. His blood pressure was 128/64 and his pulse 86 to 84, and he made light of his injuries since several other passengers, in the same automobile were so much more hurt. Next morning his headache increased, his blood pressure was 120/56 and his pulse was 88. During the day he slowly became somnolent, his pulse fell to 54 and blood pressure increased to 130/60. There were no localizing symptoms. At 11:30 P.M. a lumbar puncture removed six drams of bloody fluid under increased pressure, but without improvement in pulse or blood pressure. The next morning (36 hours after the accident) he was almost stuporous, his left arm was practically paralyzed, and his rectal temperature was over 103°. He was trephined just above the right ear. A linear fracture of the temporal bone was found running downward and backward into the base. On freeing the button of bone the blood spurted out. A large extradural clot, about 2½" x 2" x 1" was removed, but blood continued to flow up from the base, back of the ear. The dura pulsated and was not opened. Since the point of bleeding could not be found, a gauze wick soaked in adrenalin was carried down external to the dura in an effort to stop the bleeding, and the scalp hastily closed, because the patient's condition was very poor. He lived 10 hours. No autopsy was performed. This patient may have died from hemorrhage.

To summarize:

1. It is brain injury and not bone injury that is important. Therefore, do not think of the case in terms of "fracture of the skull".
2. Increased intracranial pressure, no matter how produced, causes brain injury (by interfering with the circulation of the blood or of the cerebrospinal fluid) and must be relieved. There are several methods of doing this, so choose the one most applicable to the given case.
3. The possible infection from a compound fracture must be prevented by operation.
4. Intracranial hemorrhage must be controlled, not to stop the loss of blood but to prevent increased intracranial pressure.
5. The absence of "localizing symptoms" must not be allowed to affect at all the diagnosis of possible brain injury.
6. The stage of cerebral exhaustion is too late for successful operative measures. Operate in the stage of cerebral stimulation as soon as it becomes obvious that the symptoms are not improving.
7. Keep the patient under close and constant observation from the very start.
8. "No case of head injury is so trivial as to be ignored or so severe as to be despaired of."

MISCELLANY

VERMONT DEPARTMENT OF PUBLIC HEALTH, SEPTEMBER

The incidence of communicable diseases reported during the month of September is as follows: chicken pox 21, diphtheria 1, measles 14, mumps 29, poliomyelitis 9, scarlet fever 23, typhoid fever 1, undulant fever 1, whooping cough 42 and tuberculosis 12.

The Laboratory of Hygiene made a total of 1,408 examinations. The following is a list of these examinations:

Examinations	for	diphtheria bacilli 45
"	"	Widal reaction of typhoid fever 42
"	"	undulant fever 24
"	"	gonococci in pus 146
"	"	tubercle bacilli 104
"	"	evidence of syphilis 431
"	of	water, chemical and bacteriological 120
"	"	water, bacteriological 197
"	"	milk, market 215

Examinations of	milk, submitted for chemical only	15
"	" milk, submitted for microscopical only	1
"	" foods	3
"	for the courts, autopsies	7
"	" the courts, miscellaneous	18
"	of animal heads for evidence of rabies	0
Miscellaneous examinations		40
Autopsies to complete death returns		0

There have been fifty new cases of gonorrhea and twenty-one new cases of syphilis reported to the Division of Communicable Diseases. Five hundred and ninety-eight Wassermann outfits have been sent out and 286 gonorrheal slides.

The nurses of the Poliomyelitis After-care Division made 140 home visits in September, 17 doctors were consulted, one cast removed, two patients discharged from the Audubon Hospital and one patient admitted to the Massachusetts General Hospital. Fifty-four new pieces of apparatus were fitted, 11 pieces of apparatus altered and 37 orthopedic corrections made to shoes. The vocational worker of this Division reports sales amounting to $309.71.

In the Division of Maternity and Infancy the nurse visited seven towns giving home nursing demonstrations, two towns talking to Mothers' Club meetings and one town coöperating with the Farm Bureau Association. One hundred and eighty-three birth notifications and 162 pamphlets have been distributed during September.

PROTECTION OF WORKERS EXPOSED TO CHROMIUM AND ITS COMPOUNDS

In industrial work, exposure to chromium and its compounds, either through contact with the dry material, with solutions, or with dust and vapor in the air, often causes troublesome, though not serious effects of various types in workers. Because of the increasing number and diversity of uses of chromium and its compounds, efforts have recently been renewed toward methods of protection of exposed workers.

The Industrial Health Section of the Metropolitan Life Insurance Company has completed a study of causes, effects and preventive measures which has been published in illustrated pamphlet form under the title, *Protection of Workers Exposed to Chromium and Its Compounds.* This publication is a careful scientific analysis of the problem but is phrased in everyday language which will be understood by such non-technical key men as plant superintendents and individual department foremen, as well as by the management of plants in which chromium processes are employed. Discussing preventive measures, the report states that "the harmful effects from chromium compounds can be wholly eliminated or reduced to a minimum so that the risk becomes negligible. The responsibility is equally divided between the management and the worker."

Readers who wish to obtain copies of *Protection of Workers Exposed to Chromium and Its Compounds* may do so by writing The Policyholders Service Bureau Metropolitan Life Insurance Company, One Madison Avenue, New York, N. Y.

A MOVEMENT TO ASSIST PHYSICIANS OF GERMANY WHO HAVE SUFFERED HARDSHIPS

A group of prominent physicians headed by Dr. Bernard Sachs has opened offices at 2 West Forty-fifth Street, New York, for the purpose of aiding German physicians who have suffered hardships.

Dr. Sachs is president of the New York Academy of Medicine. The committee is non-political and non-sectarian.

It is deemed important by this group that men and women of outstanding ability should be encouraged to carry on research work, and to this end scientific and professional opportunities should be provided in this and other countries.

The committee expects accessions from physicians and laymen, and an effort will be made to raise necessary funds.

Dr. George Baehr is the secretary, and in the membership list are found the names of Dr. Edwin Beer, treasurer; Dr. Alexis Carrel, famous research worker of Rockefeller Institute; Dr. S. S. Goldwater, former Health Commissioner of New York; Dr. John A. Hartwell, a former president of the Academy of Medicine; Dr. Hugh H. Young, Professor of Urology at Johns Hopkins; Dr. William H. Park, director of the Bureau of Laboratories of the Department of Health, and Drs. Emanuel Libman, David Riesman, J. Bentley Squier, and I. S. Wechsler.

A SIMPLE DIAGRAMMATIC INTERPRETATION OF BLOOD TESTS IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS, WHICH MAY BE USED FOR THE INFORMATION OF THE PATIENT

BY WALTER T. GARFIELD, M.D.,* AND N. A. NELSON, M.D.*

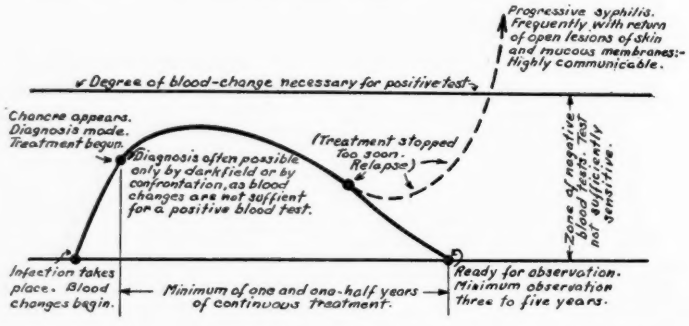
NEXT to the diagnosis of syphilis as soon after the date of infection as possible, the most important problem is to keep the patient under treatment. Among the several causes of lapse of treatment that are responsible for an unnecessarily large number, is the misinterpretation, by the patient, of the results of serological examination. It is the belief of the authors that the patient who best understands what syphilis is, what is implied by adequate treatment, and the significance of at least those procedures already known to the public as commonly used in the management of syphilis, will remain longest under treatment.

The senior author, some years ago, began to use a diagrammatic interpretation of the part played by blood tests in the diagnosis and treatment of syphilis. This method has been used regularly by both of us with such invariably good results, not only with patients but in teaching medical students and nurses, that it is now being passed on to the medical profession in the hope that it may help to keep more patients under treatment longer. Parenthetical statements are for the physician only.

Before presenting the diagrams, it is necessary to state that blood tests for syphilis, whether they be called Wassermann, Kahn, Hinton, Kolmer, Kline, or by any other name, are complicated chemical tests of only relative delicacy as chemical tests go. They do not directly determine the presence of the spirochetes of syphilis in the blood, but rather they detect certain changes which have taken place in the blood. Since the tests are not sufficiently delicate, a considerable change must take place in the blood before a positive test can be obtained. With this as a starting point, many things about blood tests are more easily understood.

Referring now to Chart I, it will be seen that some time elapses, from two to six weeks, after infection takes place before the chancre appears. If the patient comes to medical attention immediately, sufficient change usually has not taken place in the blood to produce a positive test. In fact, from three or four days to as long as three and even four weeks may elapse after the appearance of the chancre before definitely positive tests may be obtained. (Variability in the sensitivity of different types of tests accounts for some of this delay.) The diagnosis of syphilis in such a case may be made only by darkfield examination of serum from the chancre for the spirochete, or by the discovery of open syphilis in the alleged source of the patient's infection (bearing in mind the incubation period of from two to six weeks).

CHART I. SERO-NEGATIVE PRIMARY SYPHILIS.


Progressive syphilis. Frequently with return of open lesions of skin and mucous membranes:- Highly communicable.
Degree of blood-change necessary for positive test.
Chancre appears. Diagnosis made. Treatment begun.
Diagnosis often possible only by darkfield or by confrontation, as blood changes are not suffient for a positive blood test.
(Treatment stopped too soon. Relapse)
Zone of negative blood tests. Test not sufficiently sensitive.
Infection takes place. Blood changes begin.
Minimum of one and one-half years of continuous treatment.
Ready for observation. Minimum observation Three to five years.

If the diagnosis is made and treatment begun at once and persisted in, the disease may be cured without the blood tests ever becoming positive. Patients treated under these favorable circumstances have nearly a 100 per cent chance of cure. Since there is no other test than that of experience by which cure in such a case can be determined, it is necessary to continue treatment for a period which has been decided upon entirely through experience. In the present state of our knowledge it appears that at least a year and a half of continuous treatment is the minimum that can be depended upon. (It appears that a few cases will not be cured even under regular treatment for this length of time.)

If treatment is discontinued too soon, relapse follows and the patient will still have syphilis with all that that may eventually mean to him and to those whom he may expose through sex-

*Garfield—Visiting Physician, Boston City Hospital for diseases of the skin and syphilis. Nelson—Assistant Director, Division of Communicable Diseases, Massachusetts Department of Public Health. For records and addresses of authors see "This Week's Issue," page 1027.

ual contacts. Further, skin and mucous membrane lesions may soon appear which will make him highly dangerous to the community at large.

Thus, in sero-negative primary syphilis, diagnosed at once by darkfield or through the source of infection, and treated regularly to a successful conclusion, blood tests may never serve for diagnostic purposes although they have definite prognostic value, highly favorable so long as they remain negative.

Referring now to Chart II, consider the case which has not had the benefit of diagnosis and treatment at the earliest possible moment. In this case the chancre has appeared, the blood

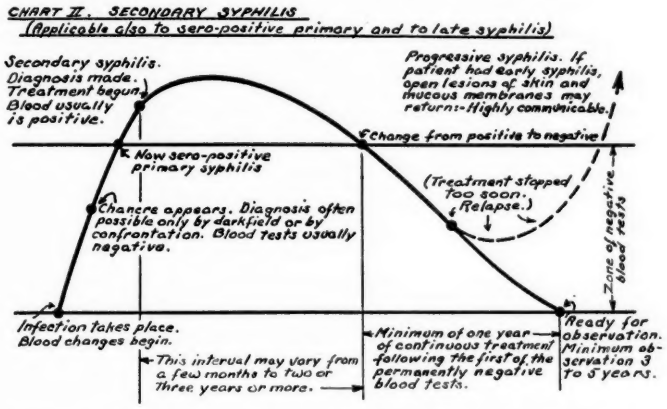


CHART II. SECONDARY SYPHILIS
(Applicable also to sero-positive primary and to late syphilis)
Secondary syphilis. Diagnosis made. Treatment begun. Blood usually is positive.
Progressive syphilis. If patient had early syphilis, open lesions of skin and mucous membranes may return-Highly communicable.
Change from positive to negative
Now sero-positive primary syphilis
Chancre appears. Diagnosis often possible only by darkfield or by confrontation. Blood tests usually negative.
(Treatment stopped too soon. Relapse.)
Zone of negative blood tests
Infection takes place. Blood changes begin.
This interval may vary from a few months to two or three years or more.
Minimum of one year of continuous treatment following the first of the permanently negative blood tests.
Ready for observation. Minimum observation 3 to 5 years.

has become positive (sero-positive primary syphilis) and the disease has advanced to the secondary stage with its rash, sore throat, headache, etc.

The diagnosis may now be confirmed* by blood tests which, at this stage are almost invariably positive. Treatment begun at once and persisted in will, in a majority of cases, cause a reversal of the test from positive to negative. Sometimes there is fluctuation between positive, doubtful, and negative before the test finally remains negative. The time required for this reversal may vary from a few weeks or months to two or three years. Some bloods are so-called "serologically-fast" and are apparently irreversible, although many of these will reverse after long treatment or modification of treatment.

However, once the reversal to negative has been effected, treatment must go on, since the tests are not sufficiently sensitive to detect the ultimate presence of the disease, just as at the beginning they were not sensitive enough to demonstrate the presence of the infection for several weeks after it occurred. Again experience must be depended upon as a guide to further treatment and it appears that not less than a year of continuous treatment in the presence of constantly negative blood tests should be given to bring the case to a successful conclusion.

If treatment is stopped too soon, even though the blood is negative, relapse will follow with serious consequences to the patient and to those who may be infected by him. If muco-cutaneous lesions appear, the community at large may be in danger.

NOTES FOR THE PHYSICIAN ONLY

(1) The patient whose infection has reached the sero-positive primary stage has already lost five per cent to ten per cent of his chance for cure. At least 25 per cent of the chance of cure has disappeared with the appearance of the secondary stage. Prognosis so far as permanent reversal of serology is concerned, becomes progressively less favorable with the age of the infection at the time proper treatment is begun.

(2) The minimum of one year of treatment after the blood has become negative may seem incompatible with the minimum of a year and a half of treatment suggested in the management of sero-negative primary syphilis. The extra half year in the latter case is to take care of any period between blood tests in the early weeks of treatment when tests, if taken, might have been positive.

(3) Chart II may be used in exactly the same way to interpret treatment vs. blood tests in sero-positive primary syphilis or in sero-positive late syphilis. Negative blood tests in late syphilis, especially neurosyphilis, are not infrequent, even though the patient has had no treatment. This may be explained as due to the absence of the spirochetes from the circulation and their relative confinement to the organ or tissue which they have invaded. Under treatment which destroys the confining chronic inflammatory tissue, the spirochetes, or their toxins, may be liberated and a positive test be obtained; thus the provocative treatment to establish diagnosis in some clinically obscure cases.

*Many syphilologists are now confirming diagnosis by immediate darkfield examination of secretion from mucous patches or from serum expressed from a scarified skin lesion (rash).

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 19461

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. EARLE M. CHAPMAN: An American born widow fifty-eight years of age was referred to the hospital by her physician because of loss of memory and motor aphasia of two days' duration.

The duration of the present illness is difficult to determine. For forty years she had had intermittent attacks of pain in both legs, very severe and sometimes accompanied by twitching of the legs. For a two year period beginning thirteen years before admission these were particularly severe and were accompanied by hot flashes, though the catamenia apparently did not cease until a year or two later. Ten years before entry a physician told her that she had a blood pressure of 200. Since that time she had had slight dyspnea and palpitation on exertion. Seven years before entry she was troubled by gas after meals, but received considerable relief from a low residue diet, bowel regulation and the occasional use of soda. One year before entry attacks of pain began to occur in her arms similar to those previously noted in the legs. Six weeks before entry sharp severe migrating pains in the arms and legs began to occur daily. Three injections of bismarsen were given intramuscularly during the last two weeks before entry. Two days after this injection she had a fever of 102° and a morbilliform rash appeared covering her entire body, disappearing in two or three days. Two days before entry on attempting to arise she did not feel well and fell upon the floor while reaching for her shoes. She had great trouble in putting on her dress, and when she went out to eat noticed difficulty in walking and was unable to name the foods which she desired to order.

Family history. Her mother had asthma for many years, and died at seventy-five of a "shock".

Marital history. The patient was married twenty years before entry. Her husband died two years later of unknown cause. There had been no pregnancies.

The past history showed a severe burn as a child and urinary incontinence until the age of nineteen. She had had dilatation and curettage for [illegible]korrhea. Her teeth had all been removed because of her "neuritis".

Physical examination. She was completely edentulous. The left pupil was very irregular, reacted to accommodation but not to light. The right pupil showed good reaction to accommodation and very slight reaction to light. The thyroid showed slight diffuse enlargement. The left border of dullness of the heart was 10 centimeters from midsternum, 1.5 centimeters beyond the midclavicular line. The right border of dullness was 4 centimeters, the supracardiac dullness 6.5 centimeters. The first sound at the apex was loud and snapping. A rough systolic murmur was heard. The first examiner thought he could distinguish a short presystolic murmur. Subsequent examiners, including a cardiac consultant, were unable to distinguish any murmur in diastole but felt that the character of the first sound was suggestive of mitral disease. The pulmonic second sound was greater than the aortic second, definitely accentuated. At the time of entry the rhythm was regular, the rate 90. The next morning there was absolute irregularity of rhythm without pulse deficit and a rate between 90 and 100. The blood pressure was 200/90. The pulses were equal and synchronous. The radial vessels were not palpable. The chest showed left dorsal scoliosis. The lungs showed a few moist râles at the bases, most numerous at the left. The abdomen was negative,—no masses or organs felt. Both ankle jerks were absent. The knee jerks were present and equal. There was no clonus or Babinski. Position sense of the toes and ankles seemed slightly diminished.

X-ray examination of the heart, a seven foot plate, showed enlargement, chiefly in the region of the right ventricle, the auricles and the pulmonary conus. There was definite dilatation of the left auricle. The blood vessels of the lung were prominent. There was no fluid in the pleural cavity. The upper intercostal spaces were wide. The upper part of the lung was more radiant than the base.

Laboratory examination of two specimens of urine showed a gravity of 1.024, no albumin or sugar, 5 to 15 white cells and 0 to 6 red cells per high power field. Blood: hemoglobin 85 per cent, red cell count 4,250,000, white cell count 7,400, differential count not remarkable. The Hinton reaction was positive, the Wassermann negative. The non-protein nitrogen was 27 milligrams per 100 cubic centimeters. The basal metabolic rate was —7. The stools were negative. Lumbar puncture showed an initial pressure of 250; right jugular compression 500-300, left jugular compression 450-250; pressure after withdrawal of 4 cubic centimeters, 175, after withdrawal of 4 more 145, after 2 more 135. The fluid showed 15 cells, all lymphocytes; total protein 39, sugar 65, colloidal gold 0001210000; ammonium sulphate, alcohol and Wassermann tests negative.

Two days after entry an electrocardiogram showed flutter-fibrillation, rate 140, right axis deviation. Six days later a second one showed auricular fibrillation, rate 135, right axis deviation.

During the nine days that the patient was on the Medical service she remained weak and bedridden. The aphasia improved slightly and she regained some use of her extremities. She was digitalized and was doing well when suddenly on the evening of the ninth day the right leg became numb, cold and blue. She was transferred to the Surgical service.

DIFFERENTIAL DIAGNOSIS

DR. JAMES C. WHITE: In discussing the history of this fifty-eight-year old widow it is interesting to pick out some of the striking features of her past history and see whether we can fit them into the present illness which brought her into the hospital and led up to her operation. In the first place, the patient has complained of intermittent attacks of pain in both legs for forty years. Forty years seems too long a period for rheumatic fever or tabetic crises. My guess would be that these are probably muscular cramps, to which some people are subject and which occur when the individual is fatigued and assumes some unusual attitude involving extreme flexion of the muscles. I do not know what the physiological cause is for this condition, but it is certainly no more common in people with arterial occlusion than in apparently normal individuals; in her case, where it has been present for forty years, it cannot be due to arteriosclerotic changes in her peripheral vessels. Thirteen years before entry she noticed hot flashes over a two year period. These were presumably due to the characteristic disturbance of the sympathetic nervous system which accompanies the menopause, although it is unusual for these periods of vasodilatation to begin as long as two years before the periods cease.

As far back as ten years before admission this woman had a blood pressure of 200 and complained of dyspnea and palpitation on exertion. It is possible that she was already suffering from hypertensive heart disease at that time, but somewhat unusual for this condition to go on for such a long period without bringing the patient to the hospital sooner. With a hypertension of ten years' duration, it is almost certain that a careful examination should show some degree of arteriosclerosis. On the other hand, I should not expect her to complain of poor circulation in her legs, as such cases characteristically run a lower blood pressure. It is unlikely that the gas after meals which she complained of seven years ago could have been due to cardiac failure, as apparently it passed off with regulation of her bowels and diet and is not mentioned again in her history. We are told that six weeks before entry she complained of sharp migrating pains in her arms and legs, for which she was given three intramuscular injections of bismarsen. Evidently her doctor was thinking of syphilis, and the pains in her extremities might therefore represent tabetic crises. Two days before entry she gives a clear cut story of a sudden cerebral accident with loss of motor power in her extremities and loss of memory as well. It is significant that her mother died of a "shock". It is significant also that this woman has never been pregnant and had a dilation and curettage for leukorrhea. Leukorrhea in a nulliparous woman usually represents gonorrheal infection. Under these circumstances it is possible that she contracted syphilis as well, and noteworthy that her husband died of an unknown disease. Up to this point from her history alone I feel fairly confident that she has had a recent stroke, antedated by a ten-year history of hypertension and a possible luetic infection.

Her physical examination gives us a further lead along these lines. Both pupils react poorly to light but well to accommodation. Her left pupil is irregular as well. Her heart is definitely enlarged, most markedly to the right, and her aortic arch widened. The auscultatory findings suggest a roughening of the aortic arch, as well as mitral stenosis with increased pressure in the pulmonary vessels. She also has a marked hypertension. The morning after admission her heart rate became absolutely irregular. The fact that her pulses were equal is somewhat against aneurysm involving the aortic arch or the innominate or subclavian arteries. With failure of the right side of the heart I should expect to find pulmonary rather than peripheral edema. This is in accord with the physical findings which we have been given. The loss of her ankle jerks and the impaired position sense in her toes point to degeneration of the posterior columns in her spinal cord and are consistent with tabes dorsalis, which has been already suggested by her history. However, the fact that her knee jerks were present and equal is somewhat against this.

The x-ray examination of her heart confirms the physical findings and points to mitral stenosis with right cardiac failure. Dilatation of the arch of the aorta, which one might expect in late syphilis and hypertension, is not mentioned.

Laboratory examination helps to confirm some of our previous suspicions in that her Hinton reaction is positive. Lumbar puncture shows a striking increase in pressure, a moderate increase in lymphocytes, and a slight alteration in the colloidal gold curve. The spinal fluid Wassermann is negative. I should expect the rise in spinal fluid pressure to follow a recent

cerebral hemorrhage or infection. If the process had extended into the wall of the ventricle, we should find red cells present as well, but in a small area which has not reached the ventricle there might well be only a slight increase in the lymphocytes together with an increase in capillary permeability resulting in edema and rise of spinal fluid pressure. The ammonium sulphate and alcohol reactions should have been positive and the total protein elevated had the process extended into the wall of the ventricle. Her spinal fluid findings might also represent the burnt out inactive stage of meningeal syphilis.

The patient's course in the medical ward is consistent with a mild cerebral hemorrhage; her aphasia improved slightly and she regained the use of her extremities, but none of the findings we have been given are sufficient to help us in a very exact localization. Her electrocardiogram six days after entry shows typical fibrillation.

During the period in which she was being digitalized her right leg became suddenly numb, cold, and blue. In any patient who is fibrillating, contraction of the auricles is greatly impaired and, as a result, clots frequently develop. As the force of the heartbeat improves with digitalis and particularly if the fibrillation is suddenly stopped by quinidine, such clots may break off and be expelled into the general circulation. In this case the embolus picked the right femoral and produced the pathognomonic symptoms of sudden arterial occlusion. We have insufficient data to localize the position of the embolus satisfactorily. Peripheral emboli nearly always lodge at one of the main branches of an arterial trunk. If in this instance the whole leg became anesthetic and cold, the bifurcation of the iliac vessels would be the most likely seat of the embolus. However, the most common point for emboli to lodge is at the origin of the profunda femoris artery. Under such circumstances anesthesia, coldness and muscle paralysis should have been present from the lower thigh down. It is extremely important to make this diagnosis and to remove an embolus at the earliest possible moment. If the operation can be carried out successfully within a few hours of the embolic occlusion, recovery is probable. On the other hand, clots which are allowed to remain for over six hours cause extensive secondary thrombi in the arteries below the occlusion and also irritate the intima of the surrounding artery to such a degree that even if the embolus is removed a clot is likely to reform.

Such a patient certainly does not constitute a good operative risk. Nevertheless, in my opinion, it is safer to try to remove the embolus than to permit gangrene to develop. In a decompensated fibrillating cardiac, there is no question in my mind as to the anesthesia of choice, as it is very easy to expose the femoral artery under novocain. I believe that with this train of circumstances there are almost no other possibilities for the surgeon to consider except peripheral embolism. Occasionally in a patient with extreme peripheral arteriosclerosis a sclerotic plaque can break loose and occlude the lumen of a main artery, but we have information in this case that the peripheral arteries were not palpable and nothing else to suggest an extreme degree of peripheral arteriosclerosis.

One important point has come up during the course of this patient's illness which must be considered in our final diagnosis. Since she has had an unquestionable embolus in her right leg, could the acute cerebral accident which ushered in her present illness two days before her admission have been due to a cerebral embolus rather than to a ruptured sclerosed artery in her brain? Although her heart was not fibrillating on admission, it is quite likely that she had previous periods of arhythmia and thrombi in her auricles of long standing. On the sound general principle of making the minimal number of separate diagnoses, I shall hazard the guess that her cerebral accident was due to another embolus.

My clinical diagnoses would then be: syphilis, old rheumatic heart disease with mitral stenosis, aortitis (?), hypertension, auricular fibrillation, generalized arteriosclerosis, arterial emboli, cerebral and femoral.

Further History

Dr. Chapman: The x-ray findings were interpreted as fairly characteristic of mitral stenosis.

Under local anesthesia the femoral artery was isolated below Poupart's ligament for a distance of eight inches. An embolus was found lying where the profunda artery was given off. An incision was made over this area and the embolus extracted. A fresh clot was found distal to the embolus and about 10 centimeters of this was also removed.

After the operation reëxamination of the patient showed that both the radial and ulnar pulses of the right arm were absent and the right hand was colder than the left hand. Pulsations could be felt in the right brachial artery as far as the elbow. The patient complained of some aching pain in the hand. The day following operation the leg remained cold and cyanotic to a point four inches below the knee. Her general condition failed rapidly and she became unresponsive to questions and at times irrational. Incontinence of urine and feces developed. The right hand continued colder than the left and was still pulseless. Seven days after operation her mental condition cleared. At this time sharp demarcation of gangrene was noted three inches below the knee.

Eleven days after the embolectomy a low thigh amputation was done. Her temperature was slightly over 100°. Her white cell count was 17,500. Three days later she suddenly lapsed into unconsciousness. There was paralysis of the left arm and leg but no definite facial involvement. Babinski was positive on the left. The knee jerks, biceps and triceps reflexes were hyperactive on this side. Slight ankle clonus was present. She continued in this condition for two days and died without regaining consciousness.

DR. AUBREY O. HAMPTON: The transverse diameter of the heart is 14.4 centimeters and the internal diameter of the chest is 24 centimeters. The heart is therefore 3 centimeters over the normal size. We interpreted this shadow, which shows at the upper left border of the heart, as a dilated left auricle; it also displaces the esophagus backward and to the right. The size and shape of the heart are quite typical of mitral stenosis except for the unusually prominent aortic knob. The pulmonary artery and the left auricle usually obscure the arch of the aorta in well marked mitral stenosis. We can explain the prominence of the aorta on the basis of arterial hypertension coëxisting with mitral stenosis.

DR. F. DENNETTE ADAMS: I saw this patient off and on for five years but rarely at intervals of less than six months, because of the fact that she lived in New Hampshire and came to Boston only for her semiannual vacations. At the time of her initial visit tabes seemed the obvious cause of her leg pains. Dr. Ayer corroborated the diagnosis, but we decided against lumbar puncture and intensive study as the disease appeared to be quiescent. It was thought that small doses of arsphenamin might control the pains, but it was impossible for the patient to get such therapy in her home town. We never insisted upon the treatment since iodides and occasional doses of aspirin controlled the discomfort.

Heart sounds were variable but a diagnosis of rheumatic heart disease with mitral stenosis was made a year after her initial visit. She had never shown signs of failure or cardiac embarrassment of any kind; so this condition seemed to require no treatment. Blood pressure remained fairly constant, in the neighborhood of 160 systolic, 90 diastolic.

In May 1933, on her semiannual visit, she reported that the leg pains had become decidedly worse and that her arms were becoming involved. For this reason Dr. Ayer and I decided that more intensive treatment was indicated and that bismarsen was the drug of choice. We were anxious to get in three or more doses during the two weeks remaining before her intended return to New Hampshire. The history as given by Dr. Chapman and probably taken when the patient was somewhat confused is inaccurate in this connection. She received three moderate doses of bismarsen within ten days, the first dose having been given about three weeks, not six weeks, prior to admission to the hospital. The rash, fever and malaise appeared the day following the third dose. There was no jaundice. These symptoms disappeared within three or four days; and the aphasia, the complication which made hospital care necessary, developed one week after the third dose of bismarsen, three or four days after the other symptoms had cleared up.

It is interesting to speculate, yet doubtless no conclusion can be reached, concerning the relation of the bismarsen to the fatal outcome in this case.

Up to the time of admission to the hospital she had never had, so far as I was able to find out, any symptoms from the mitral stenosis. There was nothing in the history to suggest prior attacks of auricular fibrillation. Her heart was regular on auscultation on the night she was sent to the hospital. I might be doubting the accuracy of my own observation on this occasion were it not for the fact that Dr. Warren, the house officer who admitted her to the hospital, noted a regular heart that same evening and discovered the fibrillation the following morning. I do not know whether we should assume that the bismarsen in some way disturbed the cardiac function and set loose an embolus which otherwise might have remained in the auricle, or whether we should consider that there was no causal relationship between the toxic reaction to the bismarsen and the cardiocerebral episode.

Our diagnosis on sending her to the hospital was rheumatic heart disease with mitral stenosis, cerebral embolism, syphilis (old), tabes dorsalis.

DR. JAMES B. AYER: As Dr. Adams said, I was asked to see this patient shortly after she had her first cerebral attack, and before she had had the embolus to the leg, or the second embolus to the brain. The question I was asked was: "Could bismarsen have caused this attack of aphasia, and how?" It seemed to me then, as it did when previously seen by me, that she had neurosyphilis. I felt that arsenic in any form, and bismarsen less likely than arsphenamin, would not cause either an increased activity of the syphilitic process (the so-called Herxheimer reaction) at this late stage, or the severe form of arsenic poisoning causing petechial hemorrhages and death. With regard to this latter type of lesion, I have studied one such case pathologically in which there were many minute hemorrhages, chiefly in the basal ganglia, but not limited to this region. Lumbar puncture also did not show a large increase in cells as evidence of an increased meningeal pathology, nor, on the other hand did it show blood as an index of extensive hemorrhage. I felt that her symptoms should be explained on the basis of

hypertension and a small intracerebral hemorrhage or thrombosis. At that time, you will remember, there had been no evidence of embolism.

A word as to the benefit to be derived from arsenic in an otherwise inactive case of neurosyphilis. It is a little difficult to explain in a case of tabes with a burned-out process, presenting no symptoms but pain, but such pains are usually amenable to arsenic exhibited in small doses. I therefore see no reason why it should not have been given to her, and I doubt very much if it did any harm, even admitting that the rash was an arsenical rash.

CLINICAL DIAGNOSES

Cerebral embolism.
Rheumatic heart disease with auricular fibrillation.
Embolism of the right femoral artery.
Central nervous system syphilis.

ANATOMIC DIAGNOSES

Rheumatic heart disease.
Mitral stenosis.
Mural thrombus of the left auricle.
Multiple emboli, femoral, brachial, renal and cerebral.
Thrombosis of the right iliac vein and vena cava.
Arteriosclerosis.
Pulmonary embolus (small).
Infarct of the lung.
Infarct of the right kidney.
Leiomyomata of the uterus.
Endometrial polyp.
Probable tabes, dorsalis.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: All the various people who saw this patient were essentially in agreement as to the diagnosis and we were able at autopsy to confirm most of it.

Her heart, in spite of mitral stenosis, some degree at least of hypertension and probably some degree of syphilis, was normal in size, weighing only 300 grams, not a trace of hypertrophy. The mitral valve was very severely involved, and the opening in it was not over a centimeter in diameter. There was a fairly large thrombus still lying in the left auricle, although the major portion of that must have broken loose from time to time to account for the various emboli which she had.

One point in the history which was not noted but which in retrospect seems significant was the finding of red cells in the urine, since she had a good sized renal infarct.

The femoral vessel which had been operated upon and from which an embolus had been removed had completely rethrombosed, so that the persistence and further development of the gangrene of the leg was not surprising.

I think it is interesting to note that as is usual in these cases, in spite of the emboli into the vessels of the arm there was no gangrene of the hand. It is relatively rare that even a major obstruction to the large vessels of the arm will produce gangrene.

The central nervous system showed evidence of multiple emboli and no evidence of active lues that I have been able to make out. Dr. Kubik agrees with me that the posterior columns are not entirely normal and that the process is consistent with a very slight inactive tabes.

DR. AYER: From the knee jerks I judge the lesion must have been pretty low. Did you examine the sacral cord?

DR. MALLORY: We have not been able to get entirely satisfactory sections at that level.

There is one point of histologic interest that I may take a moment to demonstrate. There is no note in the record of the operation of any peculiar tissue being encountered in the neighborhood of the femoral artery which they cut down upon, but at autopsy when we took out the femoral artery we found immediately surrounding it a large plaque of newly forming, very active bone. The material had a gristly sensation as it was cut but did not seem to be actually calcified. Here is another section, slightly lower down, which shows not only the bone but what is rather less common, a little focus of cartilage. This is obviously a focus of metaplastic bone formation. Occasionally osteogenesis of this type is so rapid that it is mistaken for malignant bone tumor.

CASE 19462

ABDOMINAL PAIN IN A CASE OF CHRONIC OTITIS MEDIA

CHILDREN'S MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. MARGARET MORIARTY:* This is the case of an eight year old girl admitted with the chief complaint of chills and fever. The first attack occurred four days before entry and the second the day before entry.

Past history. The child was normal at birth and was never breast fed. She gained very poorly, and was in a hospital under treatment for malnutrition for several months. At six years of age she was struck by an automobile on two occasions, after one of which eight stitches were taken in a scalp laceration. Seventeen months before admission she had bilateral otitis media. Her ears continued to drain, and a month later tonsillectomy and adenoidectomy were done, following which the ears gradually

*Resident on the Children's Medical Service.

cleared up. She had had measles and pertussis.

Present illness. About a month before admission the child waked one night screaming with pain in her right ear. There was a spontaneous discharge of pus the next day, following which she felt moderately well. Four days before admission she had a chill, with chattering of teeth, shaking of the whole body and staring eyes. There was no vomiting, biting of the tongue, loss of consciousness or incontinence. She was very hot. Three days later she had a severe headache and complained of pain also in the right side of her neck and in her stomach. She vomited once, and had another chill, following which she was brought to the hospital.

Physical examination. The girl seemed acutely ill. Both ear drums were scarred, retracted and perforated, but there was no discharge. A questionable tenderness was present over the right mastoid. The lungs were clear. Abdominal examination elicited pain on pressure in right flank, but no spasm.

The temperature was 106°, the pulse 100, the respiration 25.

Laboratory data. The white blood cell count was 23,600, the red cell count 4,600,000; the differential count 80 per cent polymorphonuclears, 7 per cent lymphocytes, 13 per cent mononuclears and transitionals. The urine was negative. A blood culture showed no growth on three days at the height of the fever. Wassermann, tuberculin and Widal tests were negative. A lumbar puncture was negative, showing eight cells.

X-ray examination showed slight destruction of the right mastoid and sclerosis of both antra.

Course. An otologic consultant found no postaural swelling or tenderness and felt that the ear did not play a part in the symptomatology. On the night of admission the pulse was 130, the respiration 60. The patient had two chills the next day, and complained of abdominal pain. There was some slight rectus muscle spasm. A cough was noted on the third day, with impaired resonance, increased breath sounds and a few râles at the right base, spreading to both bases the next day.

The child continued to run a septic temperature, between 101° and 105°, with a pulse of 120 to 150 and a respiratory rate of 35 to 60; she became increasingly toxic, and died eight days after the onset of the acute symptoms, five weeks after the recent otitis media and seventeen months after the original otitis media.

Clinical Discussion

Dr. Moriarty: On the second day surgical consultants diagnosed general sepsis with abdominal localization.

Dr. Aubrey O. Hampton: This film includes the heart and the chest. We saw an elevated left diaphragm and clear lung fields. The heart is not definitely abnormal. This is an anteroposterior film not taken at seven feet. There is some gas in the lower abdomen much lower than the usual position of the colon, but it looks like the colon. The upper abdomen shows homogeneous density instead of the mottled density we usually see when a patient is very ill with gas in the bowel and normal in position.

Dr. J. Herbert Young: This patient came to the Children's Medical service two years ago. I was on service at the time, but I have not the faintest recollection of the case and I am ashamed to say that looking at the record does not make me remember it.

As you listen to this summary you probably all say immediately that this is a case of sinus thrombosis. Apparently not all of us who saw the child at first thought it was a sinus thrombosis. I found a note here by the house officer that "Dr. Young says the child had septicemia, the primary focus unknown."

You see from the summary that the consultant from the Eye and Ear Infirmary thought that the ear did not play any part in the symptomatology. Later we did get an x-ray which showed destruction in the mastoid.

I should say from the summary that it is quite obvious that the child had a sinus thrombosis with a terminal pneumonia, probably of embolic origin. It is quite possible—I have not looked at the postmortem report, which is in the record—that in spite of the negative cerebrospinal fluid this child may have had a meningitis. I have been unfortunate enough in the past two years to see two cases, one of which Dr. Cahill operated upon, with this story of ear, mastoid and sinus thrombosis. In that case the cerebrospinal fluid was negative except for a slight increase in lymphocytes, and the culture was sterile. At autopsy that case showed a purulent meningitis over the cortex, a sinus thrombosis and a cerebellar abscess about the size of the end of my thumb. The other case was a case of mastoiditis with an absolutely normal cerebrospinal fluid, sterile culture and no increase in cell count. That case also at autopsy showed a plastic meningitis. So I should not be surprised after that experience if this child possibly did have a meningitis.

Dr. Harry P. Cahill: After reading the record one would feel that this is definitely a case of sinus thrombosis. There must be some reason why the consultant felt that it was not an ear condition or the result of one, probably because the ears when seen showed no evidence of discharge. In middle ear cases which have gone for a long period of time, a year or more, as this had, the x-rays are very troublesome, inasmuch as the sclerosis often takes place in a mastoid which has undergone as definite a degree of destruction as this mastoid had. The x-ray taken in the Eye and Ear Infirmary

showed some destruction about the mastoid. That could not be overlooked, even though the middle ears themselves were dry. Probably the sclerosis and the fact that the ears were dry and that there was none of the falling in the canal wall or edema over the emissary vein which are so common in sinus thrombosis was the reason the consultant was thrown off the track. Also, at that time the child showed abdominal symptoms and probably already showed pyemia. In that case the pyemia symptoms or the abdominal symptoms may have overshadowed the sinus thrombosis. At the same time it looks like a case of sinus thrombosis with multiple abscesses elsewhere in the body.

It is interesting to know too that the blood, although the patient had what was apparently a general pyemia, showed no growth.

I think we shall have to admit that it was a slip on the part of the Ear service even though I feel that the condition, whether diagnosed or not at that time, had already gone beyond any hope of relief by exploration of the sinus or tying off the jugular vein.

Dr. Harold L. Higgins: This case presents a number of interesting features from the point of view of differential diagnosis. We shall have to consider tuberculosis here fairly carefully in spite of the negative tuberculin test. The x-ray is of course pretty much against its being a case of miliary tuberculosis.

The abdominal symptoms are rather outstanding. Of course acute abdominal pain can appear in rheumatic fever and in pneumonia as well as in appendicitis. Then again we may be dealing with an idiopathic peritonitis.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Septicemia, source unknown.
Bilateral otitis media.
Bronchopneumonia.

ANATOMIC DIAGNOSES

Chronic suppurative otitis media, bilateral.
Acute suppurative mastoiditis, right.
Thrombophlebitis of the right lateral sinus.
Septic infarcts of the lungs.
Acute pleuritis, bilateral.

PATHOLOGIC DISCUSSION

Dr. Tracy B. Mallory: The autopsy in this case showed a sinus thrombosis on one side but not on the other. The ears were involved and showed evidence of an old process on each side, but the more acute process was limited to the right. On this same side where we found the acute lesion the right lateral sinus was thrombosed, part of the thrombus being fresh and part of it fairly old and showing some evidence of organization at the periphery. Evidently a portion of the thrombus had broken loose and had been swept to the lungs, where a series of multiple septic infarcts had occurred, two of which had broken down to form definite abscesses from one to two and a half centimeters in size. In all probability one of these abscesses had communicated with the pleural cavity, because on the left side we found a quite definite empyema. In the right pleura there was pleurisy, somewhat turbid fluid but no frank pus.

There was a slight pericarditis, but again not purulent.

The abdominal cavity was entirely negative. We found no suggestion of the cause of the abdominal pain there.

There was no meningitis and no cerebral or cerebellar abscess.

The blood cultures at autopsy, like those in life, were sterile. From the lung we succeeded in growing only a pyocyaneus. It is hard to believe that is significant, though occasionally pyocyaneus is undoubtedly pathogenic. The infection seems much more like a streptococcus one. It seems strange we did not succeed in growing it either in life or postmortem.

My only suggestion in explanation of the abdominal pain was the pleurisy. The empyema on the left had involved the diaphragmatic surfaces as well as the visceral and may have been referred from the diaphragm to the abdominal area.

Dr. Moriarty: Was the spleen negative?

Dr. Mallory: It was considerably enlarged, that was all.

I do not think the acute splenic tumor of fever very often gives any pain.

Dr. Higgins: You think the abdominal pain was due to the pleurisy?

Dr. Mallory: That would be my guess.

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SESQUICENTENNIAL OF THE HARVARD MEDICAL SCHOOL

THE observance at Cambridge, on the nones of October, of the sesquicentennial of the Harvard Medical School, was one of the most dignified and satisfying academic functions which it has been our privilege to attend. It was an extremely happy thought that the exercises should in part reproduce those of one hundred and fifty years ago. At Sanders Theatre the interest naturally centered in the addresses of President Conant and President Lowell, and in the simultaneous appearance, before a medical audience, of the retiring and of the new President of the University. Both addresses were masterpieces happily characteristic of their authors. President Conant created a most favorable impression by his concise and vigorous statement of the position of medicine and its problems of the future; President Lowell spoke with ripened sagacity and valedictory wisdom of the achievements in which he has had an important part, and of the essential purpose of medical education.

To the medical historian, the inaugural orations of Dr. Warren and Dr. Waterhouse, which they pronounced at their induction one hundred and fifty years ago, are extremely interesting and inspiring documents. It is perhaps a pity that they should not have been again delivered in Latin instead of in English translation, admirable though these translations are. The original manuscript of Dr. Warren's address is preserved in the Library of the Massachusetts Historical Society in Boston. It is a beautiful and elegant piece of Latin, abounding in subtleties of phrase and with occasional humor which no translation could reproduce. It shows Dr. Warren as a classical scholar as well as a man of science. His introductory sentence is thoroughly Ciceronian in vocabulary and rhythm: "Quoniam in hoc loco ornatissimo et ante hunc conspectum frequentem, per vestram benevolentiam me aspicitis, viri spectatissimi, liberalitatem consuetam pro hac occasione, mihi inusitata, non possum dubitare." There is a delightful play on the words Europa and Eurus; and genuine admiration and affection in the closing address to President Willard.

Dr. Waterhouse's oration is preserved in a reprint published at Cambridge, Massachusetts, by Hilliard Metcalf and Company in January, 1829. An introduction informs us that the foundation of the Medical School in 1783 was "publicly celebrated with a festive entertainment and by illuminations of all the college buildings". Evidently John Hancock was present at the original exercises of induction, as Governor of the Commonwealth, since he is addressed by Dr. Waterhouse at the opening of his oration in a passage unfortunately omitted from the English translation. "Te igitur imprimis, cujus sub auspiciis tam floret neque sola academia, tota vero respublica nostra Massachusettensis; vir spectatissime, praefecte, amplitudine munerum, virtutum praestantia, illustrissime; mihi semper, semperque nostratibus, posteris semper, per omnem provinciarum foederatarum, propter beneficia maxima, bello furente, periclitante libertate, in eam collocata universitatem, colende."

It is of especial interest that Dr. Waterhouse, as a physician and professor of physic,—an internist as we should say,—should have laid such stress on the importance of anatomy, perhaps out of compliment to his distinguished colleague, Dr. Warren. "Ad corpus humanum rite cognoscendum, dilucide explicandum, nihil utilius imo nihil magis necessarium est quam anatomia. Quis vasa lactea, quis cordis et aliorum musculorum irritibilitatem, quis peristalticum intestinorum motum compertum haberet, si abfuisset anatomicorum sedulitas? Hinc semper manet, anatomen primarium esse medicinae fulcrum."

The fundamentals of medicine have not

changed since 1783. The four addresses given in Cambridge in 1933, two from the past and two of the present, emphasize this fact, and though differing in form are essentially similar in tenor and content. They afford stimulus and inspiration for the present, and their preservation should provide material for valuable reflection by the historian of the future.

THE BOSTON MEDICAL MILK COMMISSION

WHEN, in 1892, a plan was made whereby a commission of physicians entered into an agreement with a dairyman for the certification of his herd according to certain prescribed rules and regulations, the first important step was taken in this country for the production of a clean and safe milk. We are familiar in general with the conditions which prevailed at that time. Milk was sold almost entirely in its raw state; it was frequently old, dirty, bacteria-laden and from herds riddled with tuberculosis. The infant mortality traceable directly to contaminated milk was appalling. It must have been with a singular sense of having a new deal indeed that a few fortunate mothers could turn at last to a source of cow's milk medically certified as to its fitness as a food for infants.

Legislation at the turn of the century had not yet caught the idea of so regulating the production of milk as to make it safe for human consumption. More efforts were made to protect the community's pocketbook than its health. Adulteration was considered to be a misdemeanor long before any attention was paid to original filth, and a spontaneous and unofficial effort was necessary to make even a small beginning in driving home the principle that in cleanliness lay safety. The seed, however, had been sown and the idea took hold and spread. In 1906 the National Association of Medical Milk Commissions was organized, with standardized regulations, and in the same year the first official dairy inspection was initiated by the Massachusetts State Board of Health against great (and continuing) opposition.

The year 1906 marked also, on July 5, the appointment of a Medical Milk Commission by the president of the Suffolk District Society; an official recognition which, unfortunately, no longer exists, although the Commission has maintained its work and kept the faith even unto the present day.

In January, 1907, came the first farm inspection, milk analysis and bacteria counts, and in March of that year the first farm was granted a certificate. In 1911 official standing was given to the Commission by Chapter 506 of the Acts of 1911 "authorizing the incorporation of Medical Milk Commissions for the purpose of supervising the production of milk intended for sick-room purposes, infant feeding, use in hospitals, and for other purposes," and the Medical Milk Commission of Boston was so incorporated. For a year or two after this the Suffolk District Society helped the Commission with small grants of money, since when it has had no connection with the Society. At the present time the State Department of Public Health has supervision over the Milk Commissions of the State, and the members of local boards of health are ex-officio members of the commissions.

Of the standards set for certified milk production by the American Association of Medical Milk Commissions, the most important are medical supervision of employees, with laboratory tests; veterinary supervision of herds, with laboratory tests, the herds being accredited and free from abortus infection; and chemical and bacteriologic examination of the milk. A few years ago *pasteurization* of certified milk was encouraged by the Boston Commission, and was maintained against the opposition of commissions in other parts of the country, until now the practice is widely accepted.

Certified milk has led the way to every important improvement that has been made in milk production in this country, until finally the very excellence which its example encouraged began to undermine its popularity; other grades of milk came so near to its level, although rarely quite reaching it, that it could no longer compete advantageously with them. At this point vitamin D milk came upon the stage; a milk so ideally adapted for infant feeding that again certified milk sprang far into the lead.

The Boston Medical Milk Commission, seizing this opportunity for renewed service, has encouraged vitamin D milk production among its farms, insisting on careful biologic assays at the Massachusetts Institute of Technology, until already, after only two years in production, vitamin D milk constitutes about one-third of the total supply of certified milk in the State.

It is to be regretted that, after its incorporation under the Act of 1911, the Boston Milk Commission lost its close contact with the Medical Society. Its work, faithfully and energetically carried on, is less recognized than it should be, a fact disadvantageous both to the Commission and to the profession. It has played an able hand, but so far as its professional comrades in arms are concerned it has been a lone hand.

Perhaps it is time, in the interests of one important branch of public health, for the Commission again to profit by the influence and prestige of the Society, and for the Society to profit by a more intimate knowledge of the advances which have been made in the field of certified milk production.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

OLIVER, JOHN R. A.B., Ph.D., M.D. Imperial University of Innsbruck 1911. Associate in the History of Medicine, Johns Hopkins University. Professor of the History of Medicine, University of Maryland Medical School. His subject is "Facts and Inferences Relative to the Founding of the Harvard Medical School." Page 979. Address: Institute of the History of Medicine, 1900 East Monument Street, Baltimore, Md.

KEYES, EDWARD L. A.B., Ph.D., M.D. Columbia University College of Physicians and Surgeons 1895. F.A.C.S. F.R.C.S. (Hon.) London, 1933. Professor of Urology, Cornell University Medical College. Urologist, New York Hospital. His subject is "Some Phases of the Treatment of Gonorrhea." Page 989. Address: 121 East 60th Street, New York City.

USILTON, LIDA J. A.B., M.A. George Washington University 1930. Chief, Analytical Statistics Section U. S. Veterans Bureau 1922-1927. Associate Statistician, U. S. Public Health Service. In charge of statistics for Division of Venereal Disease 1927 to date. Her subject is "Trend of Cases of Gonorrhea Under Treatment or Observation in the United States." Page 996. Address: 1613 Harvard Street, N. W., Washington, D. C.

CRONE, N. L. M.D. Harvard University Medical School 1931. Former House Officer, Massachusetts General Hospital. Address: Massachusetts General Hospital, Boston. Associated with him is

CHAPMAN, E. M. B.S., M.D. Johns Hopkins University School of Medicine 1929. Resident Physician, Massachusetts General Hospital. Address: Massachusetts General Hospital, Boston. Their subject is "Epidemic Pleurodynia," Page 1007.

ALLEN, LYMAN. A.B., M.Sc., M.D. University of Vermont, College of Medicine 1896. F.A.C.S. Professor of Surgery, University of Vermont. His subject is "Head Injuries." Page 1011. Address: 278 Main Street, Burlington, Vermont.

GARFIELD, WALTER T. S.B., M.D. Harvard University Medical School 1909. Associate Professor of Dermatology and Syphilology, Tufts Medical School. Visiting Physician, Boston City Hospital for diseases of the skin and syphilis. Physician in Chief, Cambridge City Hospital, in Dermatology and Syphilology. Consultant Dermatologist, Middlesex County Sanatorium. Address: 19 Bay State Road, Boston. Associated with him is

NELSON, N. A. B.S., M.D. Long Island College Hospital, Brooklyn, New York 1926. Assistant Director, Division of Communicable Diseases, Massachusetts Department of Public Health. Assistant Physician, Department of Dermatology and Syphilology and Junior Assistant Surgeon, Department of Gynecology, Boston Dispensary. Acting Assistant Surgeon, United States Public Health Service. Assistant in Dermatology, Tufts College Medical School. Address: 546 State House, Boston. Their subject is "A Simple Diagrammatic Interpretation of Blood Tests in the Diagnosis and Treatment of Syphilis, which May Be Used for the Information of the Patient." Page 1016.

MISCELLANY

MORTALITY RATES

Telegraphic returns from 85 cities with a total population of thirty-seven million for the week ending October 28, indicate a mortality rate of 10.5 as against a rate of 10.3 for the corresponding week of last year. The highest rate (17.9) appears for Memphis, Tenn., and the lowest (3.2) for South Bend, Ind. The highest infant mortality rate (10.5) appears for Fall River, Mass., due mainly to hospitalization facilities, and the lowest for Erie, Pa., Lowell, Mass., Lynn, Mass., New Haven, Conn., and South Bend, Ind., which reported no infant mortality.

The annual rate for 85 cities is 10.8 for the forty-three weeks of 1933, as against a rate of 11.1 for the corresponding period of the previous year.

SUMMARY OF DEATHS AND DEATHRATES (ANNUAL BASIS) FROM AUTOMOBILE ACCIDENTS PER 100,000 ESTIMATED POPULATION FOR 86 CITIES FOR CORRESPONDING PERIODS OF 1933 AND 1932

	Week ending		First 43 weeks	
	Oct. 28, 1933	Oct. 29, 1932	1933	1932
Total deaths	200	154	6,437	6,341
Deathrate	27.9	21.9	20.9	20.9

—Bureau of the Census.

CORRESPONDENCE

THE SIGNIFICANCE OF FLAUBERT'S TITLE, "MADAME BOVARY"

Mr. Editor:

A student of Flaubert's writings has called my attention to an interesting possibility regarding the origin of this name.

Flaubert was the son of a noted French provincial surgeon, and was brought up in a hospital. Much of his accurate medical knowledge was undoubtedly due to this cause.

Those familiar with Flaubert's masterpiece will recall the skilful portrayal of the gradual complete degradation of the heroine, through ever-increasing and ever-unrestrained passion.

The suggestion is that Flaubert used the English word for his title, adding the B. "Madame (B)ovary."

Yours truly,
WM. PEARCE COUES, M.D.

November 7, 1933.

POSTGRADUATE COURSES IN NORFOLK DISTRICT

November 10, 1933.

Managing Editor,
The *New England Journal of Medicine,*

Enclosed herewith is a copy of a letter which has been sent to each applicant who is enrolled for the Postgraduate Courses in the Norfolk District. It outlines our plan and we would appreciate it very much if you will publish the letter in the *Journal* as a notice in order that those who have not already enrolled and wish to do so may have the information.

Very truly yours,
FRANK S. CRUICKSHANK, M.D.

NORFOLK DISTRICT MEDICAL SOCIETY
1695 Beacon Street
Brookline, Mass.

November 10, 1933.

Dear Doctor:

The Postgraduate Courses in the Norfolk District will be conducted in three separate groups and will begin in the following institutions on the date and hour specified: Monday, November 20, in the Faulkner Hospital, Jamaica Plain, at 4 P.M.; Wednesday, November 22, in the Staff Room of the Boston City Hospital at 4 P.M.; Friday, November 24, in the Norwood Hospital at 8:30 P.M.

Three different groups have been organized for the convenience of the applicants. Any applicant may attend these courses at the Hospital most convenient to him, or, if it is so desired, may take the courses under the auspices of a district other than Norfolk.

It is hoped that all applicants, and others who may be interested in the Postgraduate Courses, will attend the opening lectures on the above dates, as the day and hour mentioned in each instance is tentative and the District Chairman will at the first exercise ask those present to select a day and hour for future exercises which shall be most convenient for the majority of those enrolled.

A majority of the applicants for courses in this District requested instruction in the ten following subjects:

1. Vascular Disease
2. Gastro-Intestinal Disease (A)
3. Medical and Surgical Emergencies
4. Arthritis
5. Diseases of the Blood
6. Acute Infections
7. Practical Medical Principles
8. Syphilis and Dermatology
9. Gastro-Intestinal Disease (B)
10. Pediatric Subjects

and these subjects will constitute the courses.

If any of the applicants have not forwarded check to complete enrollment, please forward same, made out to the Massachusetts Medical Society, to the District Chairman at the above address.

Sincerely yours,
F. S. CRUICKSHANK, M.D.,
District Chairman.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

October 30, 1933.

535 North Dearborn Street, Chicago, Ill.,

Managing Editor,
The *New England Journal of Medicine,*

In addition to the articles enumerated in our letter of October 4 the following have been accepted:

Abbott Laboratories
- Capsules Ephedrine Sulphate—Abbott, 3/8 grain
- Capsules Ephedrine Sulphate—Abbott, 1/2 grain
- Capsules Ephedrine Sulphate—Abbott, 3/4 grain
- Solution Ephedrine Sulphate—Abbott, 3%

Lederle Laboratories
- Tuberculin "O.T." (Old Tuberculin) 1 cc. vial package

National Drug Co.
- Gas Gangrene Antitoxin, Refined and Concentrated
- Tetanus-Perfringens Antitoxin, Refined and Concentrated
- Erysipelas Antistreptococcus Serum
- Tuberculin Serial Dilutions (O-T) — (Human Type)
- Schick Test Control

The following product has been included in the List of Articles and Brands Accepted by the Council But Not Described in N.N.R. (New and Nonofficial Remedies, 1933, p. 437):

Merck & Co., Inc.
- Guaiacol Carbonate—Merck

Yours sincerely,
PAUL NICHOLAS LEECH, *Secretary,*
Council on Pharmacy and Chemistry.

RECENT DEATHS

HARTMERE — SAMUEL JOHN HARTMERE, M.D., of 175 Winthrop Street, Winthrop, Massachusetts, died at his home November 1, 1933. Dr. Hartmere was born in East Boston in 1895. He graduated from Boston College high school and Hobart College, N. Y. His M.D. degree was conferred by Tufts College Medical School in 1929, and he served as house officer of the Boston City Hospital, subsequently engaging in practice with an office at 520 Commonwealth Avenue, Boston.

He was a Fellow of the Massachusetts Medical Society, the University Club, the Boston Kiwanis Club, and the Winthrop Knights of Columbus. He is survived by his mother, Mrs. Annie Hartmere of Winthrop, two brothers, Henry Hartmere of Roslindale and Charles Hartmere of Winthrop, and a sister, Mrs. Mary G. Phelan of Boston.

BARKER—Ernest Stanley Barker, M.D., of 34 Shepard Street, Cambridge, died suddenly November 6, 1933. He was born in 1869, and graduated in medicine from the University of Illinois Medical School in 1899. He was connected with the United Drug Company, and was not in the practice of medicine. Dr. Barker is survived by his widow, Mrs. Elizabeth Hoyt Barker, and one son, Stanley T. Barker.

CARVILL — Alphonso Holland Carvill, M.D., of 28 Highland Avenue, Somerville, Massachusetts, died at his home November 3, 1933, after practicing in Somerville for 61 years. He was born in Lewiston, Maine, in 1843. His premedical education was acquired at the Maine State Seminary, and Tufts College. He graduated from the latter in 1866, and in Medicine from the Harvard University Medical School in 1869. The A.M. degree was conferred by Tufts College the same year that he graduated from the Harvard Medical School. He began practice in Minneapolis, and after three years he moved to Somerville where he was influential in establishing the Somerville Hospital. He served on the medical staff and the board of directors.

Dr. Carvill joined the Massachusetts Medical Society in 1914, and retired in 1921. He was a member of John Abbott Lodge, A. F. and A. M., American Institute of Homeopathy, the Boston Homeopathic Society and several other societies. He was of Revolutionary ancestry, his grandfather having served in the colonial wars, and his father in the War of 1812. He is survived by a son, Sewall Albert Carvill, and a daughter, Dr. Elizabeth Maud Carvill.

HILL — Edgar Dwight Hill, M.D., of 13 Warren Avenue, Plymouth, Massachusetts, died at his home November 4, 1933. He was born in Biddeford, Maine, in 1855, and graduated in Medicine from the Bowdoin Medical School in 1877. Dr. Hill served as Medical Examiner for the Plymouth District for 42 years, and for several years on the staff of the Jordan Hospital. He was also physician to the County Jail and House of Correction. He served as chairman of the medical draft board during the World War. He had been assistant surgeon of the old fifth regiment. As a member of the Ancient and Honorable Artillery he was surgeon of that body. He had served as Selectman of Plymouth, and trustee of the Plymouth bank and Pilgrim Society. He joined the Massachusetts Medical Society in 1878, and held memberships in several Masonic orders, the Elks, and the Old Colony Club. He is survived by his widow, two daughters, Mrs. George E. Mabbett of Plymouth, and Mrs. John W. Parks of Brookline, a son, W. Karl Hill of Plymouth, and a number of grandchildren.

NOTICES

CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

On Thursday, November 23, in the amphitheatre of the Peter Bent Brigham Hospital at 3:30 P.M. there will be a clinic conducted by Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, to which physicians are cordially invited.

ANNOUNCEMENT

J. Arthur Barnes, M.D., and Eugene L. Richmond, M.D., announce the opening of new offices in suites 1026-27 Slater Building, Worcester, Mass.

Wylie L. Collins, M.D., announces the opening of his office at 65 Bay State Road, Boston.

REMOVAL

Edward L. Twombly, M.D., announces the removal of his office to 144 Commonwealth Avenue, Boston.

RADIO HEALTH MESSAGES

November-December, 1933

Health Messages

Sponsorship: Public Education Committee of the Massachusetts Medical Society and Massachusetts Department of Public Health.

Courtesy WBZ. Fridays, 4:30 P.M.

Nov.
17 Illness and Character
24 Heart Disease in Middle Age

Dec.
1 The Cause and Treatment of Crossed Eyes
8 Infantile Paralysis
15 The Preschool Child
22 Cancer of the Intestinal Tract
29 Preventive Medicine from Your Family Physician

State House Broadcast

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays, 1:15 P.M.

Health Subjects of Public Interest discussed by the Division Directors of the Department.

Radio Health Forum

Queries from the public are answered under the sponsorship of the Department of Public Health.

Courtesy WEEI. Fridays, 5:00 P.M.

Questions on Health and Prevention of Disease may be sent to Radio Health Forum, State Department of Public Health, State House, Boston.

NOTICES OF MEETINGS

NEW ENGLAND ROENTGEN RAY SOCIETY

The November Meeting of the New England Roentgen Ray Society will be held at the Boston Medical Library, Boston, Mass., Friday night, November 17, 1933, at 8:00 P.M.

SCIENTIFIC SESSION

"The Roentgen Examination of Cases of Low Back Pain with Notes on the Roentgen Findings in Certain Cases of Knee Joint Injury."

Speaker: W. Edward Chamberlain, M.D., Temple University Hospital, Philadelphia, Pa.

T. R. HEALY, M.D., *Secretary.*

THE MALDEN MEDICAL SOCIETY

The next meeting will be held on November 21, at the Malden Electric Company Hall, at 9 P.M.

Speaker: Henry A. Christian, M.D.

Subject: Types of Odema and Their Treatment.

ALVA H. WARREN, M.D., *Secretary.*

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The next meeting of the New England Ophthalmological Society will be held at the Massachusetts Eye and Ear Infirmary, 243 Charles Street, Boston, on Tuesday, November 21, 1933.

PROGRAM

9:00 A.M. Clinic and Operating Room.
11:30 A.M. Neuro-Ophthalmological Conference.
2:00 P.M. Ward rounds.
3:00 P.M. Further discussion of Herpes Zoster. Dr. Trygve Gundersen.
3:30 P.M. Further discussion of Ocular Tuberculosis. Dr. Merrill J. King.
4:00 P.M. Simplified Use of Verhoeff Astigmatic Chart. Mr. A. E. Covelle.
4:30 P.M. Influence of Size of Retinal Image on Binocular Vision. Dr. Walter B. Lancaster.

EVENING PROGRAM

8:00 o'clock

Papers

1. Orbital Abscess. Dr. Charles T. Porter.
2. Chronic Dacryocystitis and the Mosher-Toti Operation. Dr. George H. Poirier.
3. Eye Lesions Secondary to Nose and Throat Conditions. Dr. Harry A. Barnes.

BENJAMIN SACHS, M.D., *Secretary.*

BOSTON MEDICAL HISTORY CLUB

A MEDICAL HISTORY PAGEANT

will be given by the students of Tufts College Medical School at the Boston Medical Library, John Ware Hall, on November 20, 1933, 8 P.M.

Exhibition of classical texts of the characters portrayed in the pageant by Mr. James F. Ballard, Director, Boston Medical Library.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Amphitheatre (Van Dyke Street entrance), Tuesday evening, November 28, at 8:15 o'clock.

PROGRAM

Presentation of Cases.

Functioning Malignant Tumors of Ductless Glands. By Dr. Shields Warren.

Primary Cancer. A Study of Cancer Susceptibility. By Dr. Charles C. Lund.

JOHN HOMANS, M.D., *Secretary.*

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held in the Amphitheatre of the Peter Bent Brigham Hospital, Monday, November 27, at 8:15 P.M.

All members of the New England Heart Association and interested physicians are invited to attend.

PAUL W. EMERSON, M.D., *Secretary.*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

November 16—Harvard Medical School. Lecture on "The Care of the Patient." Amphitheater C at 5 P.M. Dr. Elliott P. Joslin.

November 16—Massachusetts General Hospital, Clinical Meeting of the Staff will be held in the Moseley Memorial Building at 8:15 P.M.

November 16—New England Hospital for Women and Children will hold its regular clinico-pathological conference at 8:00 P.M.

November 17—New England Roentgen Ray Society. See notice elsewhere on this page.

November 20—Boston Medical History Club. See notice elsewhere on this page.

November 20, 22, 24—The Edward K. Dunham Lectures will be delivered at the Harvard Medical School Amphitheater, Building C. The dates and subjects are as follows:

Genetics and Pathology

Monday, November 20—"Basic conceptions. Mechanism of hereditary and sex determination. Inheritance of pathological states in man. Hereditary factors in pathology."

Wednesday, November 22—"Origin of injurious hereditary factors by mutation. Their action as revealed by illustrative cases in human pathology. Lethal factors. Pathology of twins."

Friday, November 24—"Intersexuality. X-rays and heredity. Alcohol and heredity. The tumor problem. Intermarriage and crossing. Some bearings of genetics on medical practice."

At five o'clock at the Harvard Medical School Amphitheater, Building C. By Otto Lous Mohr, M.D., Professor of Medicine, the Royal Frederiks University, Oslo.

November 21—South End Medical Club will meet at 554 Columbus Avenue at 12 noon. Dr. Donald S. King will speak on "Compression Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax, Phrenic Nerve Operation, and Thoracoplasty."

November 21—New England Ophthalmological Society. See notice elsewhere on this page.

November 21—The Malden Medical Society. See notice elsewhere on this page.

November 22—New England Obstetrical and Gynecological Society will meet in Boston. For details address the Secretary, Fred. J. Lynch, M.D., 475 Commonwealth Avenue, Boston.

November 23—Massachusetts Society for Mental Hygiene will hold its annual meeting at the Twentieth Century Club, Boston, beginning with a luncheon at 1 o'clock.

November 23—Clinic at the Peter Bent Brigham Hospital. See page 1029.

November 27—New England Heart Association. See page 1030.

November 28—Harvard Medical Society. See page 1030.

December 7—Faulkner Hospital Clinical Meeting at 5 P.M. In addition to the usual pathological conference on the cases which have come to autopsy during the month Drs. F. J. Cotton and Henry C. Marble will talk on "Traumatic Surgery."

December 8 - May 11—William Harvey Society. For further information address Dr. Robert T. Phillips, Boston City Hospital, Boston.

December 15 and 16—The American Board of Dermatology and Syphilology will hold oral examinations in New York City. Information may be obtained from the Secretary, Dr. C. Guy Lane, 416 Marlborough Street, Boston, Mass.

February 16 and 17—The New England Hospital Association is holding its Twelfth Annual Meeting at the University Club, Boston. For details write Dr. A. G. Engelbach, Massachusetts General Hospital, Boston.

April 16-20, 1934—The American College of Physicians will hold its Eighteenth Annual Clinical Session in Chicago at the Palmer House. For information write Mr. E. R. Loveland, Executive Secretary, 133-135 South 36th Street, Philadelphia, Pa.

July 24-31, 1934—The IVth International Congress of Radiology will be held in Zurich under the presidency of Professor H. R. Schniz. General Secretary Dr. H. E. Walther, Gloriastrasse 14, Zurich.

September 4, 5, 6, 1934—International Union Against Tuberculosis will be held in Warsaw. For particulars address The National Tuberculosis Association, 450 Seventh Avenue, New York, N. Y.

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

Wednesday, December 6—Beverly Hospital. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr. Henry Pollock, Superintendent of Massachusetts Memorial Hospitals. Subject: "Some Problems in the Administration of the General Hospital."

Wednesday, January 3—Danvers State Hospital. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr. Clarence A. Bonner, Superintendent of Danvers State Hospital. Subject: Recent Experiences in Foreign Clinics.

February 7—Council Meeting, Boston.

Wednesday, March 7—Lynn Hospital. Clinic 5 P.M. Dinner 7 P.M. Speaker: Dr. Frank H. Lahey, Boston. Subject to be announced. Film Electrocardiogram.

Wednesday, April 4—Essex Sanatorium, Middleton. Clinic 5 P.M. Dinner 7 P.M. Speakers: Dr. Elliott P. Joslin and Dr. Howard F. Root, Boston. Subject: "Tuberculosis Complicating Diabetes."

Thursday, May 3—Censors' Meeting, at Salem Hospital, 3:30 P.M.

Tuesday, May 8—Annual Meeting. Salem Country Club, Forrest Street, Peabody. Dinner at 7. Speaker to be announced. Subject to be announced.

RALPH E. STONE, M.D., Secretary.
221 Cabot Street, Beverly, Mass.

Postgraduate Course

The second exercise in the Postgraduate Course will be held at the Auditorium of the Salem Hospital Nurses Home on Tuesday, November 21, from 4 to 6 P.M. The subject will be "Vascular Diseases," by Dr. Burton E. Hamilton and Dr. James M. Faulkner.

FRANKLIN DISTRICT MEDICAL SOCIETY

Meetings will be held on the second Tuesday of January, March and May at the Weldon Hotel, Greenfield, at 11 A.M.

CHARLES MOLINE, M.D., Secretary.
Sunderland, Mass.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

Meetings will take place on January 10 at Melrose; March (2nd Wednesday) at Wakefield, and May (2nd Wednesday) at Winchester.

ALLAN R. CUNNINGHAM, M.D., Secretary.
76 Church Street, Winchester, Mass.

MIDDLESEX NORTH DISTRICT MEDICAL SOCIETY

Meetings will be held on January 31, and April 25 (Annual Meeting).

T. A. STAMAS, M.D., Secretary.
226 Central Street, Lowell, Mass.

NORFOLK DISTRICT MEDICAL SOCIETY

November 20, 22, 24—Postgraduate Courses. See page 1028.

November 28—Roxbury Masonic Temple, 8 P.M. Pneumonia Symposium, in charge of Dr. Frederick T. Lord.

January 28—Tentatively Roxbury Masonic Temple, 8 P.M. Continuance of Symposium on Diseases of the Blood. Dr. Dameshek and Dr. Straus.

February 27—Place, time, subject, and speaker to be announced.

March 27—Place and time to be announced. Dr. Edward A. Edwards and Dr. Henry H. Faxon. Symposium on the Treatment of Varicose Veins.

May—Annual Meeting. Place, time and program to be announced.

FRANK S. CRUICKSHANK, M.D., Secretary.
1695 Beacon Street, Brookline, Mass.

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY

December 7—12 noon at Quincy City Hospital. Program by the hospital staff.

January 4—12 noon at Norfolk County Hospital. Speaker to be announced.

February 1—12 noon at Norfolk County Hospital. Stated Meeting. Speaker: Dr. Sara Jordan. Subject: Stomach Ulcers.

March 1—12 noon at Quincy City Hospital. Program by the hospital staff.

April 5—12 noon at Norfolk County Hospital. Speaker: Dr. Elliott P. Joslin. Subject: Diabetes.

May 3—12 noon at Norfolk County Hospital. Annual Meeting. Election of Officers.

N. R. PILLSBURY, M.D., Secretary.
Norfolk County Hospital, South Braintree, Mass.

SUFFOLK DISTRICT MEDICAL SOCIETY

November 29—Clinical Program at the Beth Israel Hospital.

January 31—General Meeting in association with the Boston Medical Library and the Trudeau Society. Speaker: Dr. Lawrason Brown of Saranac Lake.

March 28—Clinical Meeting at the Massachusetts Memorial Hospitals.

April 25—Annual Meeting at the Boston Medical Library. Election of Officers. Scientific Program, titles and speakers to be announced.

The Medical Profession is cordially invited to attend all of these meetings.

JAMES H. MEANS, M.D., Vice-President.
GEORGE P. REYNOLDS, M.D., Secretary.
311 Beacon Street, Boston, Mass.
ALEXANDER S. BEGG, M.D.,
Boston Medical Library.

WORCESTER DISTRICT MEDICAL SOCIETY

All meetings to be held on Wednesdays as follows:

December 13—Dinner and scientific program at St. Vincent Hospital, Worcester, Mass.

January 10—Dinner and scientific program at the Worcester City Hospital, Worcester, Mass.

February 14—Dinner and scientific program at the Worcester State Hospital, Worcester, Mass.

March 14—Dinner and scientific program at the Memorial Hospital, Worcester, Mass.

April 11—Open date.

May 9—Annual Meeting. Time and place to be announced later.

ERWIN C. MILLER, M.D., Secretary.
27 Elm Street, Worcester, Mass.

BOOK REVIEWS

International Clinics. Volume II, Forty-Third Series, 1933. J. B. Lippincott Company.

The physiological approach to clinical medicine is well exemplified in this volume, the greater portion of which is devoted to contributions of this nature. There are articles on hyperinsulinism, dyspnea, edema, cyanosis, hypertension of the greater and lesser circuits by such recognized authorities as Wilder, Harris, McCann, Meakins, Major, Mosenthal, etc. They comprise a group of

discussions of great value especially to those whose interest transcends the more routine aspects of practise. The same is now true of the endocrinology of the female gonads and Richardson presents an excellent article on the physiology of menstruation. These highlights in association with several other worthy articles make this an excellent volume in the series.

L'Exploration Fonctionnelle de la Rate. Diagnostic et Traitement des Syndromes Spleniques. By ED. BENHAMOU, Medecin des Hospitaux D'Alger. 252 pages, with 103 figures and tables. Published by Masson and Co., 120 Boulevard Saint-Germain, Paris, 1933. Price 50 fr.

This volume of 252 pages is written by a physician of the hospital of Algiers. The subject matter is very interesting and the difficult problem of the spleen is taken up very thoroughly in easily read French. There are many features of interest in the book, but the clear description of the adrenalin test upon the size of the organ as well as the effect on the peripheral blood is of particular importance. The differential diagnosis, the x-ray photography, and the laboratory findings in diseases of the spleen are thoroughly and convincingly described. The x-ray pictures of splenic size before and after injection of adrenalin are particularly interesting.

As a monograph of diseases associated with a single organ, this book ranks as an excellent example. The reviewer learned much in the reading of it and he, therefore, recommends it highly.

The Visual Fatigue of Motion Pictures. Compiled and edited by AARON E. SINGER. Published by the Amusement Age Publishing Co. Price $1.00.

A pamphlet of 48 pages issued by the Amusement Age Publishing Co., dealing with the effects of motion pictures on the eyes.

The currrent research reports by illuminating engineers, ophthalmologists, optometrists, and educators are given in condensed form.

A world-wide survey of the literature with reference is given, from 1905 up to the present day, showing, year by year, the reduction of factors tending to produce visual fatigue.

Most of the criticism in the past has been directed against factors totally removed from the pictures themselves, namely, ventilation, illumination, and seating. Ventilation and illumination have been largely taken care of by modern air conditioning and lighting. The seating problem is still under fire. In a good many picture theatres the seating arrangement is so bad that the patron sits in a state of muscular tension which disturbs the nervous system. The increased visual fatigue in such cases is merely a part of the general increased body fatigue resulting from cramped posture.

Regarding the pictures themselves, certain abuses in the production of the film and the exhibition of it are conducive to eye strain. Unrestrained and unnecessary use of camera movement, traveling shots, etc., are faults of production. Faulty projection causing flicker, improper screens, and poor angle of view are some of the faults of exhibition.

The general consensus is that, in normal individuals, there is no harm produced by watching motion pictures. The harmful results occur in those with particularly sensitive eyes and when errors of refraction and muscle balance go uncorrected. Watching motion pictures is hard work for vulnerable eyes, and therefore, like reading, must not be indulged in over long periods.

BOOKS RECEIVED FOR REVIEW

The Surgical Clinics of North America. August, 1933. Volume 13, Number 4. Mayo Clinic Number. Published by W. B. Saunders Company. 215 Pages.

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The Technic of Local Anesthesia by Arthur E. Hertzler. Fifth Edition. Published by The C. V. Mosby Company. 292 Pages. Price $5.00.

Surgery of the Stomach and Duodenum by J. Shelton Horsley. Published by The C. V. Mosby Company. 260 Pages. Price $7.50.

International Clinics. Edited by Louis Hamman. Volume III. Forty-Third Series, 1933. Published by J. B. Lippincott Company. 316 Pages.

Lectures on the History of Medicine 1926-1932. Published by W. B. Saunders Company. 516 Pages. Price $5.00.

A Text-Book of Physiology by William H. Howell. Twelfth Edition. Published by W. B. Saunders Company. 1132 Pages. Price $7.00.

The Diseases of Infants and Children by J. P. Crozer Griffith and A. Graeme Mitchell. Published by W. B. Saunders Company. 1155 Pages. Price $10.00.

Report to the United States Government on Tuberculosis with Some Therapeutic and Prophylactic Suggestions by S. Adolphus Knopf. Published by the National Tuberculosis Association. 59 Pages. Price $1.15.

Obstetrical Nursing by Carolyn Conant van Blarcom. Third Edition. Published by The Macmillan Company. 651 Pages. Price $3.00.

Blood Pictures. An Introduction to Clinical Haematology by Cecil Price-Jones. Third Edition. Published by William Wood and Company. 72 pages. Price $2.40.

Colds and Hay Fever by Frank Coke. Published by William Wood and Company. 148 Pages. Price $2.00.

A Life Against Death by Kenelm Winslow. Published by Lowman and Hanford Company. 292 Pages. Price $3.00.

The Science of Radiology by Otto Glasser. Published by Charles C. Thomas. 450 Pages. Price $4.50.